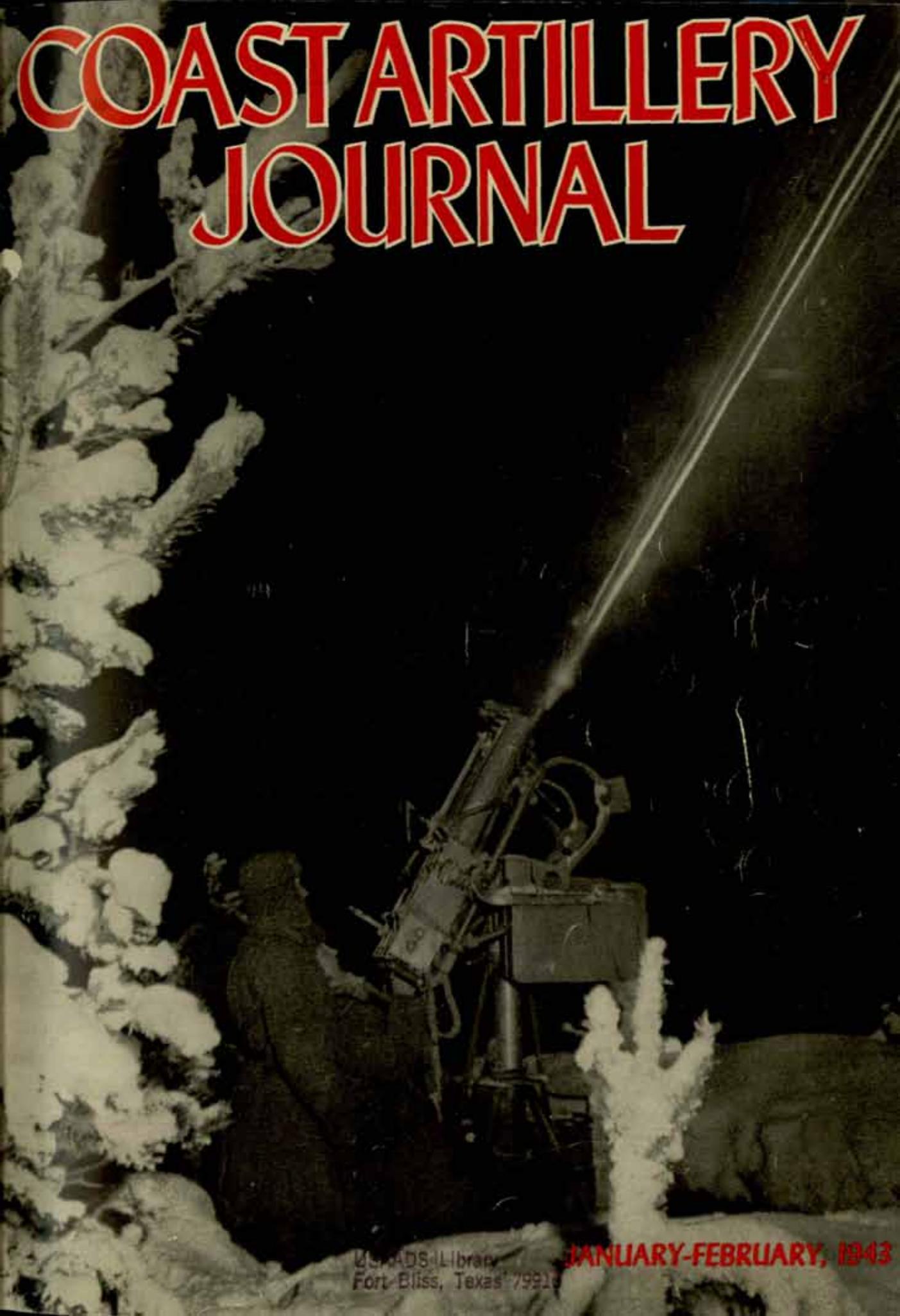


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Bug Light, at Fort Monroe.

The Coast Artillery School

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ANTIAIRCRAF MOBILIT



AA vs. Dive Bomber. This Red Army gun crew keeps firing, undisturbed by the bomb burst behind them.

At the beginning of the war with the Soviet Union, the German Luftwaffe usually struck its blows in the direction of the offensive of their land troops, extending its operations to a depth of 125 to 150 miles. Thereby it tried to strike a blow not only at the rear of Red Army troops, and their communications, but also at centers of war industry to disorganize the work there and cause panic and disorder among civilian workers. When doing this, German aircraft attacked simultaneously in several directions fanning out from the axis of the attack.

In one year of war the Luftwaffe suffered tremendous losses in men and aircraft—losing over 20,000 planes in that period. These vast losses could not be fully re-

placed by German industry even with the help of industry in the occupied countries. The German High Command was therefore obliged to revise its principles of tactical use of airplanes.

This last summer's campaign showed that the Germans are now using aircraft primarily to support their land troops' offensive on a narrow front. Moreover, they extended air operations only to the immediate rear of their enemy's front, keeping lateral dispersion of action to a minimum.

Planes were also heavily used for countering the offensive of Soviet troops. In such cases the enemy aircraft were used to strike systematic blows at the first echelon of Soviet troops in their counterattacks, trying to stem their advance in order to gain time for the regrouping of their own land forces to strike a counterblow. If this action failed to stem advance of Soviet troops, the Luftwaffe (while continuing to attack our first echelon) would direct its main blow at troops of the second, particularly at crossings and narrow passages. If this failed, the Luftwaffe centered its attention on our rear, trying to disrupt the delivery of supplies to the advancing units.

Soviet pilots and AA gunners organize their defense in accordance with the character of Luftwaffe operations. A basic principle in AA defense of troops is maneuver, which can be extensively employed by AA artillery and machine guns. A vast stretch of front does not permit the organization of equally strong AA defenses in every direction, nor is this necessary inasmuch as enemy aircraft operate usually in certain directions only. It is in such locations that powerful AA defenses have to be provided, even at the expense of weakening the defense in sectors of secondary importance.

War experience shows that the greatest effect in bombing troop crossings can be achieved by planes flying not higher than 9,000 feet. The most effective means of combating such enemy air attacks on ground troops is by synchronized fire from small-caliber AA artillery and AA machine guns. Troops of the leading echelon under cover of such AA fire must push forward as far as possible toward the enemy's main line of re-

*By radio from Moscow.

By Lieutenant Colonel Desnitsky, Soviet Army

sistance. This affords the possibility of inflicting a defeat on attacking enemy aircraft before they reach the area where the main forces of your own units are concentrated for the attack. In preparing an offensive operation it is necessary to protect transports and troop concentration on designated points from air action. Strong AA defenses along lines of communication and at points of troop concentration must be well camouflaged to prevent their detection by enemy air scouts. Therefore, fire at enemy scouts must be directed only by especially assigned batteries without permanent firing positions, which shift from place to place.

On one sector of the front, Soviet troops were preparing an offensive. Two batteries were assigned to harass enemy air scouts, the remaining AA defenses were to hold their fire, in order to mislead the enemy reconnaissance service as to the exact location and strength of AA defenses. On the night before the offensive, AA defense units formed for battle. According to plan, a great number of AA guns and machine guns were brought close to the main line. At dawn Soviet artillery and aircraft began their preparation for the infantry's attack. Germans dispatched their scouts into the air but our AAA held its fire. Assuming that our troops had not organized for AA defense, German bombers calmly advanced in compact formation, flying

at some 6,000 feet. They hoped that they would succeed in pinning our troops to the ground and give them no chance to attack, but on approaching our main line they were surprised by a heavy, effective fire from our AA gunners. Only one of the first group of six Junkers succeeded in dropping its bombs, and these were jettisoned at random in order to seek safety in flight. The remaining five planes, with full bombloads, were shot down by our AA fire.

Nor did subsequent raiders score any greater success. Density of our AA fire was so high that only a few planes succeeded in breaking through. These dropped their bombs at random. Soviet troops then launched their attack, overcoming the resistance of the disrupted German defense and advanced against little further resistance from the air.

But this was only half the task accomplished by the AA defense. It was also necessary to effect a speedy maneuver to provide constant cover for the advancing units. Rear batteries pushed forward rapidly on the heels of the infantry, which was already occupying firing positions beyond the main line of resistance. That day the Germans lost eighteen planes from Soviet ground fire alone.

These heavy losses led the German command to revise its air tactics. On the following day the German



Within sight of the Kremlin, a quadruple-mount machine gun is ready for action. Note the novel method of orienting the gun with the firing sectors.



This sledge-mount outfit was credited with the destruction of six German planes.

bombers raised their ceiling to escape the fire of small caliber AA artillery, despite the fact that greater altitude reduces the accuracy of bombing. Our AA gunners fore-saw this possibility, and during the night brought artillery of medium caliber closer to the positions of our riflemen and tanks. The picture of the day before was reproduced, with the exception that the main rôle was played by AA artillery of medium caliber.

The Germans did not expect to encounter massed fire at such a high altitude, and flew without resorting to AAA defense flying maneuvers. Our gunners entirely disrupted their plans and prevented them from accurate bombing. That day the Germans lost twelve planes. By thus divining the Luftwaffe's actions, and maneuvering without revealing its strength before the opening of the offensive, AA defense facilitates the advance of ground troops in offensive operations.

An example of successful maneuvering of AA defense units which provided for the security of our operations, is afforded by the movement of a unit under the command of Major Susky. Attacking with one tank division and one motorized rifle division, and with aircraft support, the Germans pierced the front of our defenses and emerged in our rear near a river crossing. Major Susky was ordered to protect tank units which were counterattacking. Without scattering his forces,

Major Susky arranged his battle formation to insure cover for the main counterattacking forces. On the first day the Luftwaffe tried their utmost to stop our advancing tanks, making 152 separate flights. Susky's unit downed five planes, repulsing the rest. Moving along with the land units, at dawn of the second day the AA defense provided cover for the main force, whose units were already in new positions. Thus moving along, in six days of fighting Susky's unit shot down nineteen enemy aircraft. Such examples warrant the conclusion that in offensive battle the task of AA protection is to occupy forward positions before the start of the offensive, carefully camouflage at the beginning of action and move along with attacking units as the battle progresses. This task can be accomplished, provided the plan permits great initiative on the part of the AA commander in changing the plan of his battle formations. This plan must be so elastic as to let us introduce changes in antiaircraft artillery maneuver if unforeseen developments occur.

Realization of the plan of battle also demands the maintenance of well organized communication with subordinates, as well as with supported ground troops. The plan must provide that in case communications are interrupted a subordinate may make decisions in accordance with the specific situation confronting him.

Success in carrying out battle plans and ably synchronizing AA machine gun fire with fire of small and medium caliber, AA artillery defense units taking part in offensive operations in one sector of the Russo-German front brought down 248 enemy planes during August. According to available information 800 enemy planes were operating against Soviet troops on this front. Consequently, in a month of fighting on a single front, the Germans lost 31% of their aircraft to Soviet ground defenses alone. This obliged them to raise their aircraft above the effective range of our antiaircraft defense.

In defensive operations AA defenses vary their tactics depending on the action of enemy aircraft. The task of the AA defenses consists primarily in divining enemy intentions and determining the direction of his main blow. Before an offensive the Luftwaffe usually conducts numerous reconnaissance flights. By observing the direction taken by their scouting planes it is often possible to determine the proposed routes of operation of their ground troops.

At this stage AA defenses must not reveal their real positions. On the contrary, they must try to confuse the enemy and prevent him from discovering their real strength. For this purpose again "Nomad" batteries are used. Such batteries frequently change firing positions, directing fire at the enemy reconnaissance planes where they least expect it. This misleads the enemy reconnaissance service and frequently results in its failure. Thus in two days action one "Nomad" battery downed three air scouts.

On one sector of the front German forces succeeded



Quadruple-mount machine guns light the night sky.



A heavy AA gun, truck-mounted. The barrel appears to be wrapped with white cloth.

in breaching a Soviet position. Under pressure of preponderant enemy forces, Soviet troops were compelled to retreat to a new defense line. The commander of the AA defense unit, Major Zabrodin, acting in accordance with the prepared plan, issued the necessary orders. Subdivisions changed to positions calculated to cover troops during their withdrawal in columns. This represents the most dangerous moment for retreating troops and the most convenient time for operations of enemy aircraft. Air attacks on troop columns on the march may cause particularly heavy losses, but Major Zabrodin's unit occupied its firing positions in good time and prevented the enemy from bombing our troops. The battle formation was organized in such manner as to enable all means of AA defense—immediately troops began movement—to take up positions in the march column.

and in case the enemy attacked, to fire during brief halts

Along the route of march there was a river crossing. At nightfall the AA unit commander transferred all his forces forward to protect that crossing. When the main body reached the crossing all AA defense means were ready to repel the raiders, which soon appeared. AA gunners prevented enemy planes from destroying the pontoon bridges and from inflicting heavy losses on the Soviet troops.

Red Army AA defense units are constantly perfecting their training, improving the effectiveness of their fire and producing crack gunners. For example a unit under the command of Captain Yeliseyev downed twenty-six enemy aircraft in one month's fighting. The Red Army has scores of such units, all resolutely determined to defend their native land from air raids.



The Soviet Far Eastern army attains mobility with what it has. This appears to be an ingeniously-contrived AA mount, using a terrestrial machine gun.

Corregidor in Action

By Colonel C. L. Irwin, General Staff Corps*

On the morning of the 8th of December 1941 (7th of December at Pearl Harbor) at 3:45 A.M., I received a call from General MacArthur's Chief of Staff, telling me that the Japs were bombing Pearl Harbor. He told me to alert the entire command, which I did. All units were ordered to their combat locations according to a long-established plan for just such an emergency.

Out of the troops under command of General MacArthur were organized the North Luzon Force under General Jonathan M. Wainwright and the South Luzon Force under General George M. Parker, Jr. There were additional forces in several of the southern islands under General William F. Sharp.

At noon on the 8th the Jap air force bombed Camp Stotsenburg (some fifty miles north of Manila), Clark Field (some thirty miles north of Manila), and the smaller flying field at Baguio (about 130 miles north of Manila). They also bombed the Philippine Army Flying Field at Iba on the west coast of Luzon, about eighty miles north of Corregidor. It was these bombings that were so disastrous to our own planes.

On the 9th the Japs bombed Nichols Field on the southern outskirts of Manila and the following day they bombed Cavite (twelve miles southeast of Manila) and the vessels that were docked there at that time. On the 12th they came back and completed the destruction of the shore installations that remained at the Cavite Naval Station.

On December 10 the Japs had landed in considerable strength at several far northern points (some 250 miles north of Manila) with the probable objective of establishing a bridge-head to cover the construction of land-

ing fields for land-based aircraft. The next day they landed in the Legaspi area (about 200 miles southeast of Manila) for the same evident purpose.

Landings in the Lingayen area to the north did not take place until about the 21st.¹ In the meantime a considerable portion of the Jap force farther north moved south and later contacted the Lingayen Gulf force in that area. During this movement some of our units withdrew eastward to Baguio from which place guerrilla operations were conducted by those who took to the heavily timbered mountains instead of making their way south by devious trails toward their main body.

Later Jap beach landings took place at Antimonan and Mauban, December 23 and 24, on the east shore of Luzon, about seventy-five miles southeast of Manila, and began a movement around the great inland lake of Laguna De Bay toward Manila.

Overpowering forces of Japanese soon forced a gradual retirement of our North Force from the Lingayen Gulf area down the broad central valley of Luzon. The South Force was also compelled to withdraw northward toward Manila around both shores of Laguna De Bay.

Excellent handling of both of these withdrawal actions enabled us to clear our southern force through the Manila-Calumpit bottleneck and also to evacuate our forces in the Manila area by the night of December 31, 1941.

Jap units occupied Manila in force the afternoon of January 2, 1942. Both our northern and southern

*Extracted from a lecture delivered by Colonel Irwin at the Army War College. Colonel Irwin was G-3 for General MacArthur until the General's departure from Corregidor. Colonel Irwin remained as G-3 for General Wainwright until three days before the fall of Corregidor, at which time he was ordered to Australia.

¹WD Communiqué No. 22 as of 9:30 A.M., December 22, 1941, stated, "Heavy fighting is in progress on the Lingayen Gulf, 150 miles north of Manila where the Japanese are attempting a landing in force. Under strong naval and air escort a fleet of about eighty troop ships appeared off the west coast of the Island of Luzon and soon afterwards a large number of 150-man barges entered Lingayen Gulf attempting landings in the vicinity of Agoo. Some of them succeeded in getting ashore."



Cavite Navy Yard, December 10, 1941. Small arms ammunition caused the bright blaze at the left.

Signal Corps Photo



Destruction on Bataan, caused by Japanese bombs and shells.

Signal Corps Photo

forces, however, were enabled to withdraw westward around the northern end of Manila Bay into the Bataan Peninsula. The entire withdrawal was completed successfully about the 7th of January 1942.

General MacArthur had established his headquarters on Corregidor on the 24th of December. Five days later Corregidor was subjected to the heaviest bombing received in any locality in the Philippines. The Japs bombed for over four hours with ninety-two planes flying in relays as often as they could bomb, reload, and fly again. (Editor's Note: Communiqué No. 34 credited our AA batteries with at least four Jap bombers on this date.)

In moving into the Bataan position, General Wainwright's North Luzon Force took position to the west becoming the Left Corps. General Parker's South Luzon Force took over the east section of Bataan becoming the Right Corps.

The initial general line as occupied ran across the northern section of the Bataan Peninsula from Mauban on the west, or ocean, shore, eastward along the southern edge of the crater of Mount Natib, and on to Abucay (a length of about twenty miles) on the shore of Manila Bay. A second position was organized from Bagac eastward to Orion (about twelve miles in length). Both these positions ran through heavy tropical forests with many deep gorges and heavy thickets of bamboo and thorny underbrush—about as difficult a

fighting area as could be found anywhere in the world.

From the 7th of January until the 26th we held our original line on Bataan against heavy Jap attacks on both sectors. By the 26th we were forced to withdraw to our second position as a result of an enemy penetration of our front just east of Mount Natib. This movement was successfully completed early that morning.

Throughout the engagement on Bataan, the Japs made several landings along the west coast behind our front lines in forces of from 200 to 600 men with the probable intention of cutting our supply road to the Left Corps. These enemy units were all attacked and destroyed before they could push inland to our rear.

Fighting of the most intense guerrilla type continued with but few breaks until the final surrender of the forces on Bataan April 9, 1942. Throughout this action the Japs made intermittent attacks against the entire front of our line. They were thus enabled to find whatever weak spots we had in our own line and to effect penetrations in such areas. In most sections the dense tropical vegetation aided their efforts at infiltration.

Immediately after the Japs occupied Manila they sent detachments through Cavite to Ternate on the shore of Manila Bay some ten miles southeast of Corregidor. The ground just west of Ternate rises abruptly from the bay and in this high wooded area the Japs constructed emplacements for their 240mm howitzers as well as for the 105mm gun and howitzer and the



Japanese mopping up on Corregidor. This picture and caption were taken from a Japanese newspaper.

Photo: Chemical Warfare Bulletin

150mm howitzers. These guns immediately opened up against Fort Frank with a terrific bombardment for a week's continuous shelling.

Fort Drum was also subjected to intense gun-fire. Fort Hughes received a lesser amount of shelling. This bombardment caused heavy loss to the fire power of Fort Frank and also to Fort Drum except that the 14-inch guns in turrets on Drum (two turrets of two 14-inch guns each) remained uninjured to the last. About 50% of the matériel was destroyed at Frank. Their casualties, however, were comparatively light. One shell entering a ventilator to underground fire-control rooms caused the principal loss in personnel.

The two 12-inch mortar batteries at Fort Frank were used most effectively in counter-battery work against Jap emplacements on the south shore. Our mortars there continued in action without damage until the last report on May 2, four days before the island forts fell. The main damage to armament on Fort Frank was to

mobile artillery—both seacoast and antiaircraft.

Corregidor was subjected to fire from the 105mm guns and 150mm howitzers from the south shore but not from the 240mm matériel. However, as soon as Bataan fell, these 240mm howitzers were moved around through Manila to the southern wooded slopes of Mount Marivales and emplaced some four or five miles distant from Corregidor across the north channel which ran between Corregidor and Bataan. From these positions they began systematically to pound Corregidor and to complete the destruction of such surface fortifications and utilities as the Jap bombers had missed. Personnel casualties, however, were relatively light, both from the bombing and from the enemy's artillery fire.

Japanese counter-battery fire was effective as a result both of accuracy and of volume. Japanese observation posts on Bataan, and observation planes in the air, maintained a close watch for every tell-tale flash and smoke from firing guns on Corregidor. Every flash was evidently plotted on an accurate topographic chart and firing data computed for all their batteries on Bataan. It appeared that with each spotted battery on Corregidor as a center, they would draw an area of about two hundred yards square about it and then proceed to put everything they had into such successive squares in violent bursts of artillery fire in periods of from two to three hours. Battery after battery was thus successively wiped out.

As at Fort Frank, so at Fort Mills on Corregidor, the 12-inch seacoast mortars were used most effectively in counter-battery fire against enemy gun positions on Bataan. These mortar batteries became the principal target for Japanese artillery fire. A final direct hit wiped out our two main mortar pits. This hit exploded the central magazine and wiped the two mortar pits clean.

The Japs were also able to sweep clean our northern beach defenses on Corregidor using all calibers of artillery fire from Bataan. Machine gun nests, and em-



Warehouse burning at Nichols Field, December 10, 1941. The fire was caused by airplane bombs.

Signal Corps Photo



The Myers Building, Manila port area, burning December 24, 1941.

placements for 155, 75, and 37mm guns, were blasted away. Our system of barbed-wire entanglements scattered in the blast of their exploding shell.

During the night of the 5th-6th of May preceding the day of Corregidor's surrender, Jap landing boats came ashore on Corregidor's north beach, east of the Malinta Hill area out along the curving tail of the polywog-shaped island. With an excellent artillery support—against a resistance of weakened men with few gun positions left—the final Jap assault found little difficulty in effecting their landing and forcing the surrender of Corregidor.

When the decision had been made to go to Bataan in December, General MacArthur immediately began the movement of all of our supplies out of Manila, and practically all of them were actually transported to Bataan. Food already in the final defense area was collected, especially rice, and prepared for use. However, with the large number of troops on Bataan and with the added civilian workers and native population, it was not long before rations were cut and cut again.

On Corregidor, however, at the time of its surrender, there was still food to last until July. Roughly speaking, one day's food requirement for Bataan would have lasted Corregidor eight days. No distribution of food from Corregidor to Bataan was therefore practicable. Corregidor also had plenty of water, although the supply was interrupted at times through the blasting of mains.

We hauled water to Drum and to Hughes at night.

At Frank they had the underwater pipe line to the south shore and up to the reservoir at the head of a ravine. The Japs proceeded to cut the pipe but didn't destroy the reservoir and the Philippine Scout troops from Frank would paddle to the shore at night and patch up the pipe time after time. Apparently the Japs wanted to preserve the reservoir for their own future use. There was no shortage of water on Frank.

Our main shortage in ammunition was for .50 caliber machine guns. Everybody seemed to be using them all the time.

We soon became short of 3-inch antiaircraft ammunition after the heavy Jap air raids had been in force for a short time. This shortage was especially serious in the mechanical fuze for that caliber. We did, however, later get two "sub" loads of 3-inch ammunition with mechanical fuses which were brought in to Corregidor. Even with these handicaps, the antiaircraft fire on Corregidor was very effective, especially by those batteries that had mechanical fuzes.

The Filipinos—members of the Philippine Scout regiments (both antiaircraft and seacoast artillery) on Corregidor that had been trained there for years—after the first excitement was over, operated just the same as if there weren't any bombs around. They did exactly as they were told. After seeing bombs leave the planes, they would jump into holes just prior to their landing and as soon as the bombs exploded, they were back again immediately manning their range finders and other equipment. They did excellent work.

German Siege Guns Of the Two World Wars

By Willy Ley

It was shrewd psychology on Hitler's part to start the Second World War with a speech in which he referred to a new and secret German weapon. It seems likely by now that he had no specific weapon in mind when making these remarks but they made everybody wonder and may have caused some of the fear they were intended to cause. The psychology behind the reference to a new and secret weapon was mainly to remind the world of the fact that Germany had had such a weapon at the beginning of World War I, namely Professor Rausenberger's 420 millimeter mobile siege howitzers which smashed the forts of Liège, Maubeuge and Antwerp and which were later used against Russian fortresses and at Verdun.

The interest in these heavy siege howitzers has been revived recently by reports of the siege of Sevastopol. Although not sufficiently clear and evidently flavored with propaganda these reports indicate that the Germans used several types of siege guns of a very large caliber to bring about the fall of the stubbornly defended Black Sea fortress. German claims speak about three new super heavy siege guns: a short naval rifle, railroad mounted, of 690mm caliber (approximately 27-inch) and of two rifled mortars or short howitzers of 610 and 715mm caliber, approximately 24-inch and 28-inch. Some of these heavy pieces could be fleetingly seen in German newsreels of the siege. Their construction is reminiscent of some older Skoda designs as well as of older Krupp designs but it is likely, for many reasons, that they were manufactured by Krupp. During the first World War the Krupp works proved decidedly superior in the design and manufacture of heavy ordnance—the fame of the Skoda 305mm notwithstanding—and the reports of the "underground" also claim that the Skoda works are now manufacturing principally field and medium caliber pieces. It is likely, furthermore, that the job of making new types of heavy guns would be assigned to a firm where practically all the workers are Germans, while the Skoda works are known to be sabotaged heavily by Czech workmen.

No comprehensive and reliable reports on German siege artillery of the present war have been published so far but a large number of German propaganda pictures and films released during the early part of the war permit recognition of several known types. Careful measuring of such photographs can give a good idea of the calibers of the guns and the length of their barrels

and it seems that not many of the famous World War I types are now in use.

A lot has been written in this country and in England about the heavy German siege guns of the first World War but much of it is misleading. A good picture of the World War I matériel of the Germans can be had only from German sources which are, however, widely scattered through military and semi-military journals of small circulation, and even through little-known nationalist newspapers of the period of the Weimar Republic.

A review of the World War I pieces is necessary, therefore, not only because the large collection of existing myths should be dispelled but also because knowledge about those pieces permits some conclusions as to the probable development since the rearmament of the Reich. Generally speaking, only Germany and Austria were in possession of efficient mobile guns and howitzers of large caliber in August 1914. Neither the Austrians nor the Germans had large numbers of such mobile siege howitzers at the moment of the outbreak of World War I. But they had complete plans for the manufacture of such pieces and a nucleus of experienced personnel; to increase the number of such guns was only a question of production. Most of the other belligerents had paid little attention to heavy artillery,



Thor, supposedly used by the Nazis at the siege of Sevastopol last summer. See page 47.



Burst chamber of a German long-range gun, found at Chuignes, France. It is believed that this is the defective Paris gun mentioned in the article.

save for fixed shore batteries. As a matter of fact the French at that time held dear a doctrine which had taken root to virtually the same extent as the *Ligne Maginot* doctrine of more recent vintage and which proved almost as disastrous. That doctrine was that the 75, *nôtre merveilleux soixante-quinze*, the *canon à tout faire* (cannon of all work) could do anything, that it was useful not only for infantry support, for rolling barrage, drum fire, box barrage, etc., but that the fire of the 75s, if sufficiently dense, could smother fortifications and heavy enemy batteries.

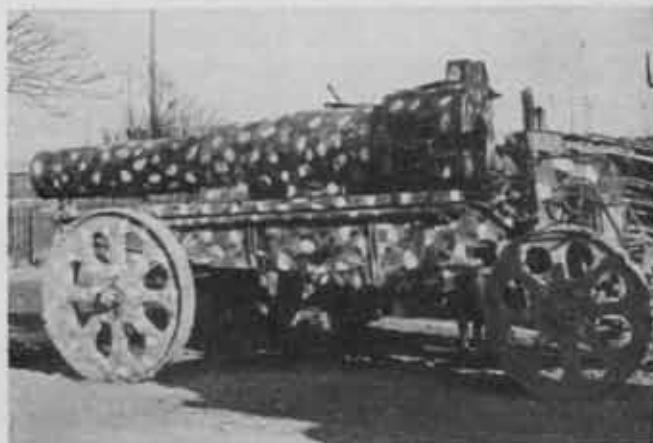
That theory might be essentially correct as far as theory goes, but it contains the important provision "if sufficiently dense" and the first World War proved conclusively that sufficient density could not be obtained. But since the larger part of the French General Staff seems to have believed in the "miraculous 75" (just as they later believed in the miraculous Maginot Line) little attention had been paid to heavier guns. In August 1914 the French army had only two types of really heavy pieces: the old 8.66-inch guns and the equally old 10.66-inch mortars. They also had some 12-inch and 13.8-inch naval rifles. Later on Schneider 280mm pieces were used in numbers by the French at Verdun. In May 1916, a 14.6-inch (371mm) mortar made its appearance and finally even a railroad-mounted 520mm (20.47-inch) howitzer was developed, firing 3086.5-pound shells with a 661.4-pound bursting charge to a maximum range of 19,685 yards. But these pieces were, as Major Hicks put it, "used exceptionally." It is significant that German soldiers of the first World War ascribed all fire from field guns to French and all heavy fire to English batteries, without making an attempt at niceties of distinction. Before the arrival of the A.E.F. they were usually right.

Against the French 75s the Germans pitted their 77s and their 105mm field howitzers; against field fortifications they used their long 150s (Krupp, or Rheinmetall) and against the Belgian and French fortresses

they brought three heavy howitzers into play: the 210mm Krupp (or as the Germans preferred to call them 21 centimeter mortars), the 305mm or 30.5cm "Skodas" and the 42cm Krupp "Berthas." Later in the war the Germans developed a marked preference for what they called *schwerstes Flachfeuer* (super-heavy flat trajectory) railroad mounted naval rifles, augmented in the end by the completely insane 120-foot Paris Gun of approximately 21cm and 24cm, the latter being simply rebored barrels of the former.

Among those German flat trajectory pieces there were some that deserve special mention. The first city subjected to long range shelling by the Germans in World War I was Dunkerque, the range being close to 40 kilometers or about 44,000 yards. The guns used for this purpose were Krupp coast defense rifles of a caliber of 381mm, forty-five calibers long. German soldiers nicknamed this gun *Der lange Emil* which led some French observers to believe that there was a special gun type "Emil." That belief was somewhat justified because the Germans did name their trench artillery in a similar manner. There was the *Minenwerfer Albrecht* and others and the shells fired by those heavy trench mortars were called by names like Lottie, Katie etc. *Der lange Emil*, however, was not a special type, it was the ordinary 381mm Krupp coast defense gun, used at a much higher elevation than customary which accounted for the extreme range. Nor did the choice of the name Emil have any specific significance as that name is used by the Germans very much in the same manner we use the name Oscar.

Another flat trajectory battery that has caused much wondering was the one of the strange caliber of 356mm. These guns (there were eight of them) were 52.5 calibers long and fired two types of shell, one weighing about 700 and the other about 1150 pounds. When fired at an elevation of 52 degrees these guns attained an extreme range of 66,000 yards. They had been built by Krupp for Greece to be used in the battleship *Bâsileos Gheorgios* and were requisitioned before they were delivered.



142mm Krupp mortar, barrel section. This gun was transported in several loads.

The most frequently mentioned German flat trajectory gun of World War I is, of course, the long range gun that shelled Paris for the first time on March 23, 1918 from the Bois de Crépy, about eighty miles from the center of the French capital. The shells weighed some 260 pounds and needed, according to the latest calculations, 200 seconds to complete their journey which carried them to a point almost thirty miles above the earth's surface. It is now known that the barrel of the gun was a little over eight inches in diameter and that it was 150 calibers long. A barrel of the *lange Emil* type formed the outer cover, a rifled 210mm barrel was inserted into this and another 210mm barrel pieced on in front. Because of the excessive pressures to be expected the shells had two driving bands preceded by pre-rifled bourrelets and the barrel was left smoothbore for a length of forty calibers near the muzzle. Since a barrel of this length could not possibly remain straight it was supported by a bridge-like girder structure.

The official name of this gun which is still miscalled Big Bertha by some careless writers was *Kaiser Wilhelm Geschütz* but was usually referred to as *Parisgeschütz* or *Ferngeschütz*. Official name during the experimental stages seems to have been *die lange 22.2 Zentimeter Kanone im Schießgerüst* (the long 222mm cannon in the shooting cradle). The different caliber mentioned in this designation is unimportant, the cali-



Eight-inch Austrian gun.

ber of the Paris Gun actually varied while it was being fired. Sixty numbered shells were provided for each barrel which was supposed to stand that number of rounds safely. While the barrels, with one exception stood sixty rounds and possibly more, some of them had to be discarded after the fiftieth round because the gun kept undershooting. The shells slightly increased in size in the order numbered; the explosion of one of the guns after the third round is probably due to an error either in loading or in the numbering of the shells. It seems that the rebored barrels of one inch

TABLE I
HEAVY GERMAN ORDNANCE OF WORLD WAR I

Caliber (cm)	Length (Cal.)	Weight of Shell (Approx.) (Pounds)	Extreme Range (Yard.)	Name or Nickname
GUNS:				
17cm	L/40	141	30,000	—
21cm	L/40 and L/45	220-240 (four types)	28,000	—
24cm	L/30 and L/40	310-330 (six types)	28,000	—
28cm	L/40 and L/45	770	38,500	—
30.5cm	L/50	900 (?)	41,000	—
35.6cm	L/52.5	700 and 1150	66,000	(from Basileos Gheorgios.)
38.1cm	L/45	900 and 1650	55,000	<i>langer Emil</i>
(All these guns, from the 21cm up, came on stationary platforms as well as on various types of railroad mounts.)				
21cm	L/150	260	142,000	{Paris
23.5cm	L/132	273	100,000	Gun}
HOWITZERS:				
21cm	L/12	260	9,000	—
28cm	L/12	770	11,000	"Schwere Küsten Haubitze"
28cm	L/14	770	12,500	same
30.5cm	L/8 and L/12	800	9,500	("Schwerer Küste Mörser")
30.5cm	L/17	850	13,200	"Kartaune"
42cm	L/16 RR	{2550 2050	16,000	"KMK"; "Gamma"
42cm	L/14	{1800 880	10,250	"M." "Dicke Bertha"



German 380mm gun, apparently wrecked in the retreat of 1918.

larger caliber (used from the *Bois de Corbie*) did not require numbered shells since they failed to attain the full 80-mile range anyway. The crews of the guns made no distinction between the two types but called both *die Pariserin* (*La Parisienne*).

Some of these World War I types can be recognized in photographs released by the Germans in 1939 and 1940. The guns at the Channel Coast shown in such pictures are in all probability "long Emils," 381mm coast defense rifles, forty-five or fifty calibers long. Some railroad mounted guns look like 280mm, forty or forty-five calibers long. Railroad mounted howitzers seem to be 210mm and 280mm pieces, twelve or fourteen calibers long. One picture of an extremely long barreled gun released in 1939 does not only look as if it were taken some twenty years ago, it is suspicious for other reasons too. The barrel shows the typical supporting girders of the Paris Gun and I take it to be a picture of the 1918 Paris Gun, released now for propaganda purposes.

A revival of the Paris Gun would be senseless at present. Some ten or fifteen rounds daily of 260 pounds each are not likely to make the same impression nowadays as they did in 1918; air raids with much heavier bombs have eliminated the morale value of such a piece.

A German howitzer that can be seen clearly on many new photographs is almost an exact replica of the German 210mm of World War I. It shows the same shod wheels and the same array of long recoil cylinders as the original. Since that original piece was generally considered excellent no reason exists against its revival.

The 210mm howitzer¹ is an old and highly developed standby of German siege artillery. The shell weighs 262 pounds, and the (original) 1896 model carried a high-explosive charge weighing thirty-eight pounds. Just before the first World War the Germans reduced the weight of the bursting charge in most of the numerous types of their heavy ammunition. In the case of the 210, two new types of shell were introduced,

one carrying a high-explosive charge of seventeen pounds and another one with only fourteen and five-tenths pounds. The extreme range of the World War I howitzer was from 9000-10,000 yards, depending on the type of shell fired.

Another World War I type believed to be recognized on late news photographs is the 305mm howitzer. During the first World War it came mostly on motorized mounts. Both the Skoda and the Krupp type of this caliber, the news photographs of the present war show to be on railroad mounts.

The length of the barrel of the gun on these pictures seems to indicate that the revived type (it has to be remembered that all heavy German and Austrian ordnance was scrapped in 1919-20) is not the famed "Skoda" L/10 or L/12 but the Krupp 305mm L/17 which was generally known among German soldiers as the *Kartaune*, actually the name of a field piece of the 15th century. With its longer barrel the *Kartaune* surpassed the "Skoda" in accuracy of fire over long ranges, if not in extreme range.

The fact that both Skoda and Krupp manufactured 305mm and 420mm howitzers during the first World War has been a source of never-ending confusion. For reasons which I have been unable to understand until very recently "Skoda" got all the credit. Credit was due to the Skoda howitzers in many instances, but they almost invariably got credit for destruction wrought by Krupp howitzers.

The existence of the 42cm howitzers was first revealed at about the time of the attacks on Namur and Maubeuge and the damage to the forts of Liège was done almost exclusively by these howitzers. The very first round from these guns was fired against Fort Pontisse on August 12, 1914, at 6:40 P.M.

It was this gun which was known as *Dicke Bertha* or Big Bertha (not the Paris Gun) and the history of this piece was as follows:

At the turn of the century the heaviest howitzers produced by Krupp were the 305mm howitzers L/8 (see Table I) designated as *Schwerer Küstenmörser* (Heavy Coast Mortar). The shells of this type weighed about 800 pounds and the extreme range was a little short of 10,000 yards. This 305mm L/8 had then recently been enlarged from an earlier 244mm model. But it was felt that the designation 305mm L/8 would tell too much about the piece, it was therefore referred to as *Beta*, the old 244mm being presumably *Alpha*. In 1910 *Beta* got a longer barrel and became known as *Beta 09 L/16*. This howitzer, lengthened by another caliber and motorized later on became the *Kartaune*. But even before *Beta 09 L/16* was created it was decided to build a heavier howitzer since it seemed possible to build concrete fortifications that would withstand direct hits from 800-pound shells. The caliber of the heavier piece was decided upon as 420mm and it was put on the drafting board as *Gamma L/16*. The official name, which was retained all through the first

¹The Germans refer to all heavy howitzers as *Mörser* (mortars) but the guns are definitely short and medium howitzers with barrels from 12-16 cal. long. In German usage the term *Haubitze* is restricted to field howitzers. The Austrian usage was not quite uniform, some heavy howitzers were called *Mörser* while others, of essentially the same characteristics of length etc. were called *Haubitzen*.

World War, became *Kurze Marine Kanone* (Short Naval Cannon) abbreviated to KMK. Officially the "42s" were referred to as KMK Batteries as late as 1916. Another name invented for the howitzer was *Ypsilon* which is just the German pronunciation of the letter Y. That usage probably originated with somebody who did not know the Greek alphabet, since the written letter *gamma* (lower case) looks very much like the written lower case y.

The tests of these guns were well under way in 1911 and the preliminary work on the range tables was done by Captain Becker (Cranz-Becker, Ballistics). The extreme range was found to be 16,000 yards, the accuracy much higher than just "satisfactory" and the test shells weighed about 2100 pounds, holding a charge of TNT of 310 pounds. TNT was chosen because it was less sensitive than the other high-explosives in use for German shells. For some time a controversy was going on whether such a large charge should be anchored solidly in the shell, whether it should be poured in or packed in and, if the latter, whether it should be packed in an elastic medium or in "magnesium putty" which would harden solidly. After examining a number of shells that had been fired without fuses against concrete targets it was decided to use blocks of TNT, pressed so as to fit well, anchored in hardening putty. At the same time the charge was reduced to 100 kg (220 pounds). Later several weights of shell were designed (see table) among them one that was hardly more than 1.5 cal. long so that it had to be equipped with a windshield. Whether the shells would be hardened or not, or hardened only at the tip caused another long controversy. Krupp had just had some revealing difficulties with naval shells for the 381mm guns. Since they were to be armor-piercing they had been hardened (some completely and some only at the tip) with the result that stored shells cracked from mere changes in temperature! It was then decided not to harden the shells of the 42s. Even with normal hardness they did not stand up too well. It was repeatedly observed that they broke without penetrating when hitting armor plate at an angle only slightly less than 90 degrees.

In general Professor Rausenberger, the designer of the 42s, had every reason to be satisfied except for one point: the piece was much too heavy. The Gamma howitzer made six heavy (about twenty-ton each) railroad car loads, plus a seventh carload for auxiliary equipment. The total weight was 175 tons, the mounting of the piece took thirty-six hours if everything went without a hitch. But a prepared railroad spur was needed, and if that had to be built too (and the range was not very great) the whole operation took one week. This might explain why the Germans used their new heavy howitzers which were no doubt ready in 1939, only once so far, at Sevastopol, with a second contemplated use at Stalingrad. The latter was prevented by the counterattack of the Red Army.

The need for a lighter 42cm was clearly indicated. The result of the wish for a lighter 42 was "M," also known as KMK L/14 and later called *Dicke Bertha*² which was ready in 1913. Range had to be sacrificed to make "M" possible, instead of the 16,000 yards of *Gamma* it carried only to 10,250 yards. The most effective range, at which it was used when possible, was from 4500-5500 yards, the most effective range of *Gamma* was 8000-9000 yards. The comparatively short range of "M" often made it necessary to bring the gun up to positions just behind the German lines which was especially bad since the 42s produced a very typical orange colored smoke ring (not cloud) which emitted a typical whining howl. They were easy to spot for this reason and commanders of the KMK batteries report that all lighter artillery changed positions when they arrived since they did not like the heavy fire always drawn by the KMK. The report of the discharge was surprisingly mild. The soldiers fired the gun with a foot long lanyard, being more protected by the splinter shield against the noise than onlookers who stood about fifty feet away.

(In 1916, when the quality of the ammunition had fallen off perceptibly orders were issued to fire the howitzers by means of a long lanyard from cover, because it was not rare anymore for the shell to explode in the barrel.)

Since nothing could be done about these betraying smoke rings the Germans devised special "smoke ring throwers" (*Rauchringwerfer*) which were coupled with noisy explosive charges in wooden boxes and attached to "carelessly camouflaged" dummy guns. They were electrically set off by the firing of the real piece, located some 1000 feet to the rear.

The "M" battery consisted of two guns and had 280 men, commanded by the battery commander, usually a captain. Two hundred men came from the foot artillery, the other eighty were drivers and mechanics. The battery, when traveling, consisted of ten loads, each load pulled by a tractor. The battery could travel

²Only the "M" howitzer bore this nickname, the *Gamma* was always referred to as *Eisenbahn 42* (railroad 42). Other nicknames for the "M" (and only for the "M") were *Tante aus Essen* (aunt from Essen, the seat of the Krupp Works), *Dickes Luder* (Fat Wench) and *Dicker Brummer*. It is difficult to translate the latter term properly, the verb *brummen* means a noisy whir or hum in the bass register, *Brummer* is a colloquial name for the *Hummel* (bumblebee). The term *dicker Brummer* was also applied to the shells of the "M" howitzers, which, however, were usually called *Eiserne Portion* (iron portion) strictly distinguished from the *Kohlenkasten* (coal box) which always meant a heavy flat trajectory (naval) shell.

That the *Dicke Bertha* was named after Frau Bertha von Krupp is nonsense. It could be guessed that it meant about the same as "Fat Wench," Bertha being proverbially the name of a heavy-boned and fat maid or cook, the traditional girl friend of the German soldier. I have found German cartoons hinting at this, but I believe that the term actually originated by way of a historical reference, similar to that expressed in the nickname *Kartause*. The Germans are convinced that the monk *Berthold der Schwarze* (black Berthold, meaning really Berthold the Alchemist) invented the guns. Consequently a gunner was a man "whose tuition with Master Berthold had been paid for by the king." Cannon were sometimes referred to as Master Berthold's daughters (used in a semi-humorous fashion), Big Bertha would then simply be Master Berthold's biggest daughter . . . a derivation which is much more German than any other.

about 5 mph on good roads. Load No. 1 consisted of materials and tools for assembly, load No. 2 was the platform wagon, load No. 3 was cradle and spade, load No. 4 was the carriage proper and load No. 5 the gun proper. In firing position "M" weighed 42.6 tons. The howitzer always disappointed visitors because it looked much smaller than it actually was, having a slender barrel—the thickness of the metal was only three and five-tenths inches at the muzzle—and having all the bulkier parts, the breech which measured four feet in diameter, the recoil cylinders etc., hidden by the splinter shield.

The maximum propelling charge was 110 pounds; a barrel stood 2000 rounds even when every round was fired with the maximum charge. There is only one case on record where a barrel burst earlier (with round 888) except for those cases where the shells exploded in the barrel. The frequency of faulty ammunition, coupled with the comparatively short range which became dangerous when the Allies produced greater numbers of railroad mounted naval rifles, led to the withdrawal of the 42s in 1917.

They had been used at Liège, Namur, Antwerp, Maubeuge, against quite a number of Russian fortresses and finally at Verdun, Ypres, Nieuport and Dixmuide. One "M" battery had performed more or less as a field howitzer battery during the crossing of the Danube in the Serbian campaign. This use as a field howitzer was not exceptional, the Germans used the "M" batteries very much as *canon à tout faire* after about a year of war. They were used to shell villages and even field fortifications. Since they were not designed for this purpose the effect was mainly moral, even though the heavy shells produced some 15,000 splinters of an average weight of two ounces. Penetration of heavy brick walls by these splinters at a distance of over 1000 feet has been observed, but the shells, or rather their fuzes, were not built for this type of fire. Even when the fuze was set at "no delay" it permitted the shell to bury itself in the ground so that most splinters went high. One 42cm shell did not create a bigger breach in a barbed wire entanglement than a gap of about twenty feet, filling most of the gap with a big crater. If the Germans had succeeded in producing an instantaneous fuze for these shells the howitzers would have been enormously effective as heavy field pieces.

As it was they were effective only against solid fortifications. Captain Becker related that he usually succeeded in picking the shell up in the air with his field glasses just before it struck and once succeeded in doing so in the case of a direct hit on an armored cupola. He saw the shell strike with a blinding flash which he knew to be the impact of steel upon steel. Then nothing happened for a seemingly long interval. After that the cupola "erupted," being thrown about a hundred feet in two large sections. Afterwards it was found that the shell had punched a clean hole through the armor;

the punched out plug and the shell tip were found almost side by side inside. The effect against concrete was even more devastating, but Captain Becker reported that a captain of an engineer battalion voiced it as his professional opinion that the Belgian Government had been shamelessly defrauded by contractors. The quality of the concrete was as poor, he stated, "as it could be and still hold together." Similar reports have been made about the concrete in the Maginot Line in the present war.

When the first World War started the German army had a surprisingly small number of heavy guns. There were eight pieces of the old 305mm L/8, two of the newer 305mm L/16, two of the 280mm L/12 and L/14 and one *Kartaune* (305mm L/17), an unstated number of 210mm L/12, two *Gamma* batteries of two guns each, one "M" battery of two guns and a one-piece "half-battery" of *Gamma* which was ready about two weeks after the outbreak of the war. These figures, from a German source of the post-war period, may be discounted as propaganda, but there was little reason for such propaganda when they were published. Rather they show that the Germans trusted the productive capacity of their armament works which would provide large numbers of the latest types in a short time (and probably did). The "unstated number" of 210s seems to have been fairly large, at any event.

As far as *Kartaunen* and *Dicke Bertha* go the figures are no doubt correct; the Liège forts were smashed by the only then existing "M" battery, called *Kurze Marine Kanonen Batterie* No. 3. (I don't know why "No. 3," it was the only one.) Since the Germans needed more heavy guns at the Western Front in a hurry Austrian Skodas were called in to help. They were of the old L/10 type. (See table.)

And it is this fact, coupled with extraordinary secrecy about the 42s which has caused most of the confusion. The existence of the Skoda howitzers was more or less known. It was known that they could be transported on roads in sections with a speed of twelve mph and that they could manage an incline of 16 per cent, that their assembly took only about twenty-four minutes. The "M2" and *Gamma* howitzers had been kept secret so secret that only a few hundred people knew about them. Since their tests had been conducted so openly that the editor of a local newspaper had visited them and produced a story accurately describing the guns containing all the weights and performance data, etc (the secret police seized the printed paper before it was distributed) it is a little miraculous that complete secrecy could be maintained, but it was the case. In fact the higher commands did not know the performance of the pieces; even GHQ was doubtful about the range. Consequently the battery commanders had a hard time rejecting orders from high quarters. Requests for shelling of positions three times as far away as the extreme range were normal; the commanders of the batteries were steadily afraid to be court-martialed

TABLE II
HEAVY AUSTRIAN ORDNANCE OF WORLD WAR I

Caliber (cm)	Length (Cal.)	Weight of Shell (Pounds)	Extreme Range (Yards)	Designation or Name
GUNS:				
24cm	L/40	470	32,000	---
35cm	L/45	1540	33,000	---
(The 24cm L/40 could be mounted in place of the 38cm howitzer on the combination road-railroad transportation equipment designed for the latter.)				
HOWITZERS:				
24cm	L/9	300	7,100	"24cm mortar L 9"
30.5cm	L/10	{ 836 630 660 (shrapn.)	{ 10,500 12,100 12,100	"Motorbatterie" or "Motormörser"
30.5cm	L/12(1916)	{ 630 660 (shrapn.)	{ 13,500 13,500	or "Skoda"
38cm	L/17	{ 1630 1320 (shrapn.)	16,500	"38cm Haubitze Muster 1916" (Barbara and Gudrun.)
42cm	L/15	{ 2200 1760	{ 14,000 16,000	"Küstenhaubitze Muster 1914"

(The 42cm howitzer was introduced as "Coast Howitzer M-14"; later it was made mobile and designated as "Belagerungshaubitze L/15" and finally, in 1917, mounted in the same manner as the 38cm and called "42cm Autohaubitze.")

for disobedience of orders. The reason for all this was that their actual performance was not released for publication until after the war and that the enthusiasm of the German newspapers went unchecked. Those papers wrote that the guns had been secretly developed by Krupp and presented to the Kaiser on the day of the declaration of war, that they therefore had to be served by Krupp engineers who insisted on wearing formal dress while doing so and that the range was sixty miles. The higher officers who barely knew that the guns existed went by newspaper reports, making some allowance for exaggeration but not enough. Such exaggerated secrecy may sound incredible to the average American; the Germans took it to be normal and justified. And it is literally true that a general did not know range and effect of the howitzers unless he took the trouble of finding out from the battery commander.

Some of these beautiful canards about the Krupp engineers had a slight foundation in fact. Many of the officers who knew about the pieces had been employees of Krupp's after honorable discharge from active service. They re-enlisted when the war started and were, of course, left with the matériel they knew. But they wore, of course, uniform. As for the story of the "present" both Becker and Justrow agree that all credit has to be given to the A.P.K. (*Artillerie Prüfungskommission* = Ordnance Dept.) under General Sieger for the conception of Gamma and "M" and for the detailed specifications turned over to Krupp for execution. However, as late as 1931 Krupp engineers told me that their firm had borne the expense of the pioneer model, the first *Gamma*, that Army officers had ridiculed them for

attempting the impossible and that Krupp got the A.P.K. to look at the piece only through intricate and powerful political pull. After that everything went smoothly.

At any event: those howitzers were *secret!*

After Namur and Maubeuge news photographers were permitted to swarm in and take pictures, not of the guns, but of the shells and of the damage done by the shells. And Justrow asserts that at least the greater part of the shell holes thus photographed and published were not shell holes at all, but craters caused by demolition crews who had blown up partly damaged fortifications. In fact Justrow did not publish his collection of pictures because he was not sure himself. On the other hand government photographers photographed a number of shell holes definitely caused by the 42s, released them in the form of official picture postcards . . . and in 1916 an Austrian publishing house published a picture book entitled *Our Motor Mortars in the West*, containing most of these postcard pictures but ascribed to the Skodas. Captain Becker recognized several of them as craters the formation of which he had personally observed when directing the fire of his "M" battery.

All of which explains why the stories are so confused.

In 1915 the "Skodas" were withdrawn from the Western Front, to be replaced by the German 305s and the then more numerous "M" batteries. The Austrian 42 never appeared on the Western Front, they were then still *Küstenhaubitzen* (Coast Howitzers) and did not become mobile until later in 1915. It seems that the Austrian 42 did not perform well at all.

Austrian sources stated that after the initial success of the Gamma and "M" howitzers it was decided to build a similar heavy howitzer for the Austrian army and it is hinted that the "42cm M-14" was regarded as obsolescent, if not obsolete.

The new heavy Austrian was the *Belagerungshaubitze L/17* (siege howitzer L/17), designed in April 1915 by the chief engineer of the Skoda works, Richard Dirmoser. The type was officially ordered in June 1915. Two pieces, christened *Barbara* and *Gudrun* were ordered. The characteristics were as follows:

Bore 380mm (15-inch)

Shell, main type, 740 kg (1630 pounds) with H.E. charge of 68 kg (150 pounds)

Barrel, 17 calibers or 646cm

Elevation from 40 to 75 degrees

Range: 3.6 to 15 km, or about two to ten miles.

The piece was transported in four loads, one with the barrel weighing 38 tons, the others 37.5 tons, 36.5 tons and 33 tons, respectively. The ammunition car carried twenty rounds, it was augmented by ordinary trucks carrying one round each. The cars were of the gasoline-electro type. Gasoline engines drove dynamos and their current was fed to electromotors which drove the wheels. Each wheel had its separate motor. And each road wheel carried inside, permanently attached, a slightly smaller railroad wheel, so that the shift from road to rail could be accomplished with no perceptible delay. The caravan travelled ten mph on good roads and sixteen mph on rails. The guns were ready for test firings in January, 1916. They were used for the first time during the Spring Offensive at the Italian Front in 1916.

The Austrians kept these guns as secret as the Germans had their "Ms." Consequently they are still not well known. Secrecy was maintained by ordering parts in widely scattered factories (the ammunition was ordered as "shells for captured enemy gun") and maintained well. As a matter of fact an Austrian deserter informed the Italians about every particular of the pieces, but his claims were disbelieved because there was no way of checking them. This saved the two 38cm howitzers because the road over which they were brought into position was not only clearly visible from Italian mountain positions, but also was within easy range of their 280mm rifles. As it was the Italians did fire at the transport, but more or less as a routine matter. If they had kept up intensive fire they could have kept the howitzers from going into position, but apparently the Italians could not quite get themselves to believe in 380mm howitzers on a mountain road 5000 feet above sea level.

The offensive began in May, 1916 and the Austrians had a lot of heavy artillery massed for the purpose. Two of the newly mobilized 420s, the two 380s, one 350mm naval rifle, some twelve or fifteen 305mm Skodas, the same number of 240mm rifles (they could

be put on the carriage of the 380mm howitzers without any change) and many medium and small pieces. The offensive was at first successful, being helped by so much heavy artillery—the two 380s alone fired 185 rounds on May 15, 1916—but petered out after a short time.

A total of twelve of the 380mm howitzers was ordered by the Austrian government, but only ten were delivered before the armistice.

I have devoted so much space to the heavy German and Austrian howitzers for several reasons. One of them was to give a resumé of source material which exists only in German and had never been translated. Another reason was the obvious one of correcting the widely current errors about these pieces. And finally: this story teaches a lot of things. It shows that the most incredible secrecy is not only possible in Germany but that it is merely a matter of routine. Krupp could have developed the 24-inch, 27-inch and 28-inch guns boasted by Goebbels' Propaganda Ministry in full secrecy even without the threat of the Gestapo around. The comparative clumsiness of the World War pieces would explain why the guns were kept unused during the various *Blitzes* until a temporary stalemate developed at Sevastopol. The comparatively short range of *Gamma* and "M" tends to have the same result.

But it can be taken for granted that the real *Gamma* and "M" pieces have not been revived. It is likely that the methods developed for the transportation of *Gamma* and *Gudrun* have been utilized to carry heavier pieces for exceptional use. So far only one of them, named *Thor*, has been photographed from a comparatively short distance. *Thor* is said to be the 24-inch howitzer, or 610mm, but many observers are willing to concede only 510mm (20-inches) to it. The photograph shows that it is railroad-mounted in the manner of *Gamma*; some of the features remind one more of *Barbara* and *Gudrun*, however. But "M" looked smaller than it was when assembled. It is likely that *Thor* has a caliber of 610mm, as measurements taken from the photograph leave room for a thickness of metal of at least 4 inches at the muzzle if a caliber of 610mm be assumed.

If the Russians observed the damage done by the shells of this piece—which is not very likely in the stormy confusion of the fighting at Sevastopol—they have kept quiet about them so far. And the Germans finally took the city and made the more leisurely observations themselves.

The shell from a 24-inch mortar would weigh some 4000 pounds and the range has been estimated at twenty miles. Judging from the performance of *Gamma* and of *Barbara* a fifteen-mile range seems more likely.

It can be taken for granted that there would be little opportunity to use these howitzers if a really stable front should still develop, because they would be outranged by most longer barreled howitzers from the 240mm up and by all railroad-mounted naval rifles.

Men At Play

By Captain Boyd H. Pulley
Coast Artillery Corps

Men like activity. This is a basic fact that doesn't change materially regardless of occupation or circumstance. The fighting man is not substantially different from his brothers in factories, arms plants, or even on the farm, because the man under arms came from a similar background.

In spite of the numerous new factories that influence or control the soldier's activities, he still retains many former habits and certainly lives by unnumbered delights and pet peeves. Were it not so, complete personalities would change over night—and not always favorably.

Probably the most drastic and sudden change in a soldier's life is becoming a soldier. Frequently, weeks are spent in training centers taking the shock out of the bitter pill. Our Uncle has a way of soldiering—*His way!* And sooner or later every pleasure-seeking and freedom-loving nephew must redraft his thinking to conform.

After the first jolt of turning in the civies for khaki, the numbness begins to seep out of an over-crowded brain. Finally, when guard orders, customs of the service, gun drill and rifle nomenclature in routine fashion soak up the fever of previous frustration, the individual again begins to stabilize. It is then that the desire for many former activities crowds upon the soldier. At this instant, some men cease to scratch for themselves. Immediately the problem of diversion looms before every organization commander.

Any activity must spring from a free, fun-loving, spirit if it is to accomplish the greatest possible results. In wartime confusion, it is important that the fighting man's nerves be cooled down by a good shock-absorber. Athletic competition produces relaxation and is a sure-fire remedy. Spirited contests use energy and divert attention to personal achievement. During a fast game each man is his own boss while striving to perfect individual technique. On this premise we have tried to let the varied group interests dictate recreation policy.

Whether it's basketball, fishing or an ordinary "bull-session," the officer's position is on the side-lines. He can be enthusiastic and show his interest in what the men are doing by socializing, but actually to participate might curb many a soldier's originality and enjoyment. This is not a set rule because there are times when the men delight to see their officers take the starch out of their cuffs and let their hair down on a man-to-man basis. However, the occasion and extent must be carefully determined. As a simple example, a half dollar bet within hearing range of bystanders, that some lone basketball sharp shooter can't sink a long shot, may start a spirited game of twenty-one or some other basket-shooting contest.

Men who never gave two consecutive thoughts to

fishing, upon seeing a can of bait will waddle off to the beach, fish pole poised ready for any unsuspecting sea monster. It is certain that out of 150 men there will be at least a couple of expert fishermen whose never-waning devotion to the art will lend enthusiasm in direct proportion to the number of fish they can catch.

In purchasing fishing equipment, this organization (Battery B of the 6th CA) took advantage of the law of supply and demand. If everyone who wanted to fish could get tackle every time, the interest would soon subside. A little waiting creates demand. Consequently only six complete sets of fishing tackle suitable for surf casting (at a price well under a hundred dollars) were purchased. Sinkers and other tackle can be fashioned by the experts. This not only stretches the funds, but stimulates interest in keeping equipment in good condition. However, the enterprise is cold-blooded business. Anyone breaking or damaging equipment must either repair it or purchase replacements. Soldiers have a healthier respect for materials with a pocketbook value.

On one occasion fishing stories were the topic of the hour. Striped bass were hitting the hook with exciting regularity, and in less than two hours the fishing party returned with enough beauties for an entire meal. This was fresh fish, and because battery personnel made a sport of getting it, the savory flavor was enhanced.

Horse shoe pitching takes a small area with equipment costing next to nothing. And yet it is surprising the interest developed on two courts where winners battle for mythical honors—with a bottle of soda pop thrown in as a side-bet for high score.

Baseball has won support in our battery partly because we have three or four men on the post team which gives the boys inside interest in league games. Practically any unoccupied moment of the day finds a pitchers' duel raging along the battery parade. All the equipment needed for a baseball game is a couple or three gloves, a hard ball, and a contest complex. Strikes are called, the runs tallied and side after side retired as long as the pitching wing will flip a curve.

It's no mere accident that men collaborate in friendly competition. Good fellowship and hard work toward a common interest will generate the factors that hold interest in work or recreation. However, a bond of trust must be established among members of the group. Sometimes organizations are criticized for working their men too hard since hostilities began in December. A full work schedule has definite advantages providing the work is vital and concerns all men equally. Furthermore, soldiers, like anyone else, appreciate encouragement. Under good direction and thorough organization, stiff work assignments are good morale boosters. Our men have built a huge quarters-dugout, an under-



Singing requires little but enthusiasm.

Signal Corps Photo.

ground kitchen, and their own day room, as well as numerous other projects of field fortifications, not to mention acres of camouflage.

We have found that the best response to recreational activities is after a hard day's work or on occasion when a half day's free time has been offered as a reward for finishing a job ahead of schedule. More often than not, with the added impetus, this half day's work is actually a full day's quota done in half the time. Under the guise of getting something for nothing the men force themselves to a speedy but happy conclusion of what might ordinarily be a task of drudgery. Whether it's cards or football passing, boxing or throwing medicine ball, socking a punching bag or hand-over-hand up a rope, or wall climbing (and we provide all of these and as many others as interest demands) we have developed spirit and enthusiasm by direct challenge.

Most of us enjoy watching a champion perform. We usually select our "hero" and subconsciously assume his problems and share his glory. That's why a big league game draws people from all walks of life, takes busy men away from business, makes "little boys" invent sick grandmothers, etc. They all meet at the playing field where they systematically go wild, cheering themselves hoarse.

We have tried to inject a little of the same wildman serum into what might otherwise be a quiet pastime. It takes infinite patience to instill the desire to excell, but it can be done on a friendly basis and pays well in satisfaction when finally accomplished. It is not only neces-

sary to sell a man on the idea that he can improve his own capabilities through matching efforts with someone of equal or superior skill, but each event must be popularized. Crowds make the "gay-way" bright and attractive. Place a superficial value on winning a simple game and soon competition is whipped to a fever pitch. At least that's the general idea for mass participation. If the gang is stirred up just doing most anything in the sports line, the spirit of combat and competition carries on with momentum.

Then there are quiet activities along the line of hobbies and diversions. Usually the happiest, most contented men are those with a hobby or sideline interest. If these interests can be brought before the group for enjoyment and approval the man involved is frequently inspired to greater activity and achievement. Soon the group will look to the man for performance of his specialty whatever it might be. We have a cartoonist who is especially in demand. Every time a matter of subtle gripe comes up we can expect to see a pencil sketch depicting the situation with full credit to any offender.

Another developed specialty always in demand is an impersonator.

In both of the foregoing instances audience pressure developed talent and demanded repeat performances. The request of a friend is difficult to refuse and particularly at the peril of losing his good will. Most men will stand anything better than the displeasure of associates. Consequently, almost every soldier is striving for

mode of expression to gain the approval of his friends. It's wise to furnish enough variety in activity to capture even the most timid soul.

Maybe the imposing list of sports creates the impression that we have unlimited athletic facilities and plenty of space. The sports cited (fishing excepted) are all conducted in an area, back of the gun platforms, totaling less than 600 square yards. The longest stretch is about 200 feet long and fifteen feet wide with a bulge on one side where a single basketball hoop is installed. All activity centralizes in this area, including Infantry Drill and other training. The men know we have furnished the best facilities possible and they cooperate. If anyone has ideas of improvement, suggestions are made without hesitation. Frankly, we have been helped greatly by men trying to help themselves. Yes, we have a radio, but only after the men rigged up a reducer to cut voltage from 220 to 110. There is no equal for resourcefulness in men who are faced with difficulties and hard work, and who set out to solve their problems cheerfully.

It has been a policy to keep our men well informed by subscribing to a couple of good daily newspapers and all the current magazines justified by popular demand. Battery owned books are rather scarce but somehow the fellows at least partially satisfy their desires for reading material through use of the various libraries. Men who own books have been very coöperative in passing them on for the enjoyment of someone else.

Service groups have added considerable enjoyment to soldier welfare. The Red Cross, Motor Corps, and Cookie Brigade all lend valuable assistance and have always been well received at our organization. We have been told that they like to come where they are appreciated; and the men hold in high regard those who give so unselfishly of their time and means. The soldiers often participate on the program sponsored usually each week by these service organizations. With their combined efforts they have a two-fold accomplishment, not the least of which is keeping the public generally aware of what it means to be a soldier. This point will not be developed further than to say that a common understanding furnishes a solid background for any social service work. Those who gain this appreciation are congenial and have little trouble "getting next" to even the shyest man.

The second important connection between service men and the auxiliaries is their ability to bring the outside atmosphere to the men right at the gun platform. The fact that someone cares enough to just come around to see what goes on is enormously important in fortifying against hours of monotony.

In general their activity embraces three phases: entertainment, refreshments, and a social contact. As for the first time—the entertainment might consist of songs, dances or gag routines by talented visitors. This type of specialty is good if properly organized and executed even though it usually lacks polish.

Another method of entertainment is to blend soldier talent from the group along with the visiting artists. This is ticklish business, for if the method of promotion is too aggressive the enlisted men balk. Many times they will refuse to come around even for refreshments because of a previous embarrassment caused by over-coaxing.

Entertainment furnished by professionals is by far the most popular. Frequently the entire cast from a local night club will present a sparkling review of a gag-lined show. Without cover charge and all tricks strictly in the open, the performance is a howling success.

Refreshments and favors run along assorted lines with a few welcomed standbys. Cookies and cakes are prominently featured and are eagerly accepted. Other items include cigarettes and matches, candy, gum, magazines and miscellaneous supplies such as stationery, candles, books and pictures.

Socially the entertainment personnel lend charm and variety in a way that few would imagine. On nearly every occasion the troupe is invited to have lunch with the company. Besides being a novelty to the visitors, an air of hospitality is shared by the men when they feel that in some measure the meal expresses their appreciation.

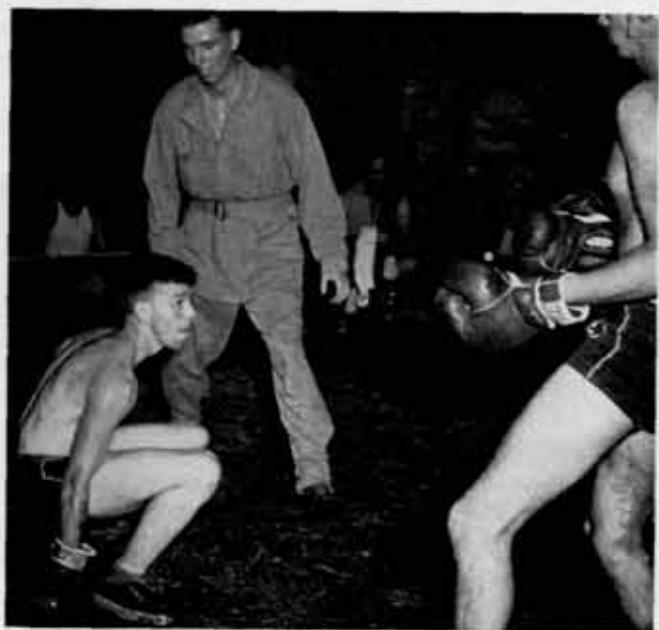
Sociability is further emphasized when a group of entertainers makes a return trip and the individual members recognize some of the men calling them by name. The soldiers hold interesting conversations with some of the visitors.

Both the Red Cross and Motor Corps through the local leaders made all arrangements with Army authorities represented by the Special Service Officer, to visit some of the otherwise restricted areas so as to enable them to bring the entertainment right where it is most needed—where the men must work and live.

In connection with entertainment that should be available at all well established posts, the regimental band frequently makes the rounds to all gun battery emplacements where they give concerts including compositions of the masters, a good variety of marches, and enough well arranged popular numbers to catch the fancy of even the most indifferent.

In sponsoring recreation we are primarily interested in two types of soldiers. In one category we find the individuals who follow a lead and accordingly lend their support to almost any activity that bobs into prominence. Their steady support is indeed a valuable promotional force. Every game gives them the satisfaction of improving their skill along with muscular development.

The other class might be dubbed the self-starter or spark-plug type. Always something cooking and usually on the front burner!! These fellows are cases of walking misery unless they can start something. And it's usually good! They are the ones who make the difference between a dull unresponsive organization and



"Each man is his own boss while striving to perfect individual technique."

Signal Corps Photo.

an outfit sparkling with good humor. The so called "good humor" boys are the first to indicate impending trouble. When they cease to clown for the benefit of fellow soldiers it's time to change oil.

A good topkick is the salt of his organization and in this respect it is not possible to overstress the importance of having the best man available fill the position. To be successful he must not only have the feel of group psychology, but must dominate his subordinates by sheer force of character, having won the unqualified respect of every man in the organization. Give me a First Sergeant of the old school. Many of them are hard nosed, but just as fair and square as they can be tough. The Army is their business and they have learned it well.

It is essential that all officers stand solidly back of their men and make this good influence felt. Soldiers will go a long way under stress, and not ask for the trimmings, providing those in command will give unwavering support and assistance whenever necessity arises. Frequently the crisis in a man's life may appear insignificant to those not involved. But a small favor or perhaps one of unusual nature may win the staunch and everlasting support of a soldier.

It all boils down to effective administration which is a multiple factor, depending on not one person, but a team of vigorous men working as one individual. In a fraternalized unit discipline problems are self solving. Group pressure is far more effective than fear of drastic punishment. A man cannot successfully withstand the displeasure of associates. Soldiers, especially in the non-commissioned ranks, appreciate confidence and respond to assignments of trust. It has been our policy to find each man's specialty or avenue of interest and give him as much to do in that field as possible with enough va-

riety along other lines to round out a training program.

It has been stated that in order to show someone an enjoyable evening, get him started talking about himself and listen intently. If the conversation lags start him off again and keep it primed with personal questions.

When officers show genuine interest in what the men are doing trust and confidence are developed. This of course, applies to duty, but more directly to a man's hobby. If you can determine what a man does with his spare time, you can learn infinitely more about the person than can be learned from how well gun drill is performed by him.

Those hobbies are a valuable index to a man's motivating interests. Almost any person can find time and energy for what he likes best to do. And naturally, everyone performs best along lines of his interest. Individual aptitudes run along varied lines. In a group of a hundred men there are usually musicians, artists and entertainers, but don't overlook self-expression in the numerous crafts, such as carpenters, plumbers and electricians. The men who compose the latter group are just as proud of their abilities as the artists.

We have an enlisted man who seemed listless and lacked interest in any assignment provided. He even got to the point of refusing to cooperate at gun drill. One day a water pipe broke and he asked if I wanted that line cut off and repaired. The offer was such a surprise that I almost refused, telling him that the Utilities could take care of the trouble, but if so we might have to wait until men were available. In desperation, I said that he might close the valve controlling that section. In less than an hour he was back confronting me with a big smile and commenting that if the plumbers had not already been sent, their services were unnecessary as he had found the trouble, a connection had come uncoupled.



Keen eyes and quick reflexes make baseball players—and soldiers.

Signal Corps Photo.

My enthusiasm and commendation must have betrayed my surprise and sparked his interest. My second surprise came the next day when he returned to the office entirely of his own volition and made a full and complete report on all plumbing fixtures from the shower to drainage pipes, and practically in the same breath remarked that if we could get certain replacement parts he could salvage others and take care of all installations.

Here was a man begging for a medium of expression and recognition of his ability. And with it the man's manner of conduct had improved practically over night.

Since then, he has been given every repair job possible. It makes not the slightest difference to him where the job is, if given a free hand he will wallow around a grimy drain pipe all day long and report, smilingly, "job completed." He was recently promoted to corporal on the basis of good work.

The organization has other tradesmen equally qualified and just as eager. There are the carpenter and the electrician, both sergeants and underpaid from the standpoint of merit. They work practically without supervision and are constantly figuring out ways to spread a little material to cover numerous demands.

In every organization, it's the utility men whose tireless efforts along lines of interest are classic examples of loyalty. We have tried to develop this quality in every man who shows the slightest possibilities, for a willing worker is happy and needs less supervision than one driven to work.

Special interests must be discovered without offense to the soldier. This may be accomplished by any of several approaches. First, let it be clearly stated that there is a difference between discovering talent and prying into a soldier's personal affairs. We have never resorted to snooping. However, a soldier usually exhibits articles of proud possession which will offer a clue to the man's interests, and during weekly inspection, an alert officer can see exhibits prominently featuring the soldier's hobby. Carved replicas or miniatures might indicate a liking for art, or items such as model planes or other subject matter point out trends of individuality.

Photographs treasured by the men often indicate by content the bright spots of civilian life or offer a glimpse of a favorite pastime.

There is one other inexhaustible source of information regarding the enlisted men. The grape-vine can be used to great advantage when you can find a man who likes to talk about what everyone else is doing. Care must be exercised to use only the "golden egg" and leave the "goose" alone. Casual interest is the best approach. Enough noncommittal comments can be interspersed to keep the conversation rolling. It's also important to abide by the journalist's creed—neither divulge the source of information nor use the information against the informer. After letting the low-down cool off, the facts gleaned from the conversation can be "dis-

covered" without any clue of a leak in the rumor-chain.

Our Hill-Billy Band was formed through fragmentary information pieced bit by bit. Some of the men had musical instruments and others were purchased until now several soldiers who were not aware of others' accomplishments find hours of enjoyment blending their talents for the pleasure of their buddies who stand in a smiling circle lending vocal support to the familiar refrains.

Many of our soldiers have come from cultured families highly respected by associates. In this connection they have cultivated the friendship of important men through business or social contacts. I believe a large proportion of enlisted men feel that in general, commissioned officers look down on a soldier's efforts. With the Army chain of command system of control it's not difficult to realize how many men might subconsciously adopt an inferiority complex which would cause discomfort when around officers, especially around the cool self-sufficient type.

From certain incidents, I conclude that most men in the armed forces are lonesome and in some cases greatly miss the association of a former boss or some other relatively important individual who has furnished an opportunity to emphasize self-importance. Officers should be able to furnish at least a facsimile of this type of association. This is a huge assignment heaped upon the already multiple tasks. However, in considering this as a means of accomplishing that expected and when weighing results obtained by increased respect and admiration, it is fully worth the effort.

If results are a reliable indication, the record of this organization is proudly presented. Men of outstanding qualities have always been given every possible opportunity for advancement. Other units may have done as well, but we believe that few if any, have done better. During the past eight or ten months and notably since December, 1941, this organization has furnished 17 men for various Officer Candidate Schools. Two more men are awaiting examination results, and there are eleven men going to night school during their free time, taking courses in algebra, geometry and trigonometry, in preparation for future Officer Candidate examinations to fill quotas in fields where they may qualify.

Other important advancements have been made in the noncommissioned brackets. Three men from the organization have been promoted to master sergeant, three to first sergeant and five to mess sergeant. All this has been accomplished with virtually the original allotment of men.

Yes, men like activity! And wherever there is vigorous participation, happy men will be found capable of hard work and exacting duties. The fighting man is more valuable to himself and country when actively engaged to the best of his energy whether it be hard at work or hard at play.

Bofor



↑ Note the flag—it indicates that this machine never stops, even during the change of shifts. Twenty-four hours a day, seven days a week, this cutter turns out bronze ring gears.



↑ Women's deft fingers have stepped up wiring efficiency more than 20% at the Firestone plant. (The lady's name is Julia.)

← The feminine touch wires the distribution box of the "40."

Assembly Line



↑ Column of fives to final inspection.



← The guns move along the assembly line.



→ Off to the wars — and good hunting!

Identification of Merchant Ships

By Kenneth L. Brown

There are many occasions, both in combat and non-combat situations, that require the Coast Artilleryman to be skilled in the methods of identifying merchant vessels. This is not always a simple task, especially for a soldier who has spent most of his life many miles from the sea, as is the case with a large proportion of Americans. Even for the experienced observer with years of familiarity with the sea, there is always great opportunity for error because of conditions of visibility, camouflage, light, and structure of the vessel itself.

There are two ways of identifying ships:

1. By name.
2. By type and characteristics.

IDENTIFICATION BY NAME. When he sees a vessel offshore, the first thing the Coast Artilleryman must do, if possible, is obtain the name of the ship.¹ This can sometimes be done by observing its name and by obtaining information from flags, visual signals, or by radio signals. If the name of the ship is ascertained, refer to the index in the appropriate naval manual, to determine if that ship is listed. If so, turn to the page of the manual on which the description and the profile are given. Compare the actual ship with the description and the profile. However, because of various conditions, it is not always possible to obtain the name of the ship. In most cases the identity must be determined long before the name is visible or can be obtained by means of signals.

This method works out well on paper. Unfortunately, in actual practice it will not always work so well. As mentioned before, because of various conditions it is not always possible to obtain the name of the ship. In most cases the identity must be determined long before the name can be obtained even by means of signals. An enemy ship would certainly not reveal its true identity under any circumstances.

IDENTIFICATION BY TYPE AND CHARACTERISTICS. The Navy Department has worked out a system for identification of the thousands of merchant ships in the world today. This system, based on *type* and *characteristics*,² is as effective as any yet devised. Because ships are generally "tailor made," it is more difficult to identify them specifically than it is to identify the uniform products of the mass assembly line, such as planes or tanks. The Navy, to develop its scheme of identification, decided

upon general features common to all or large groups of ships. These features were divided into two large groups based upon the frequency of recurrence and location of important and outstanding features and the peculiarities of ship construction.

GROUP I. TYPE

Observe number and position of the following factors:

1. engines
2. kingposts
3. masts
4. funnels

GROUP II. CHARACTERISTICS

Observe peculiarity of construction of:

1. bow
2. stern
3. funnels
4. superstructure
5. deck
6. ventilators
7. cranes

In order to identify a ship by this second method, the Coast Artilleryman must learn to type the appearance of the factors and distinguish the peculiarities of construction upon which the system is based. He must train himself to detect instantaneously and classify the features of the ships used in the system. These parts of the identification system are recapitulated and illustrated in the following paragraphs. The identification of a merchant vessel by type and characteristics involves the ability to perform the following:

1. Type the ship according to position of engines and to sequence and number of masts, kingposts, and funnels.
2. Determine the characteristics and classify them according to the system described in the following explanation.
3. Locate a vessel of similar type and characteristics in the appropriate Naval manual. In the index, ships with engines amidships (marked A) are listed in the order of the increasing numerical number of funnels, masts, and kingposts. Ships with engines aft (marked B) are indexed in three groups—cargo carriers, tankers, and whale factories. Thus, a ship typed A-MFM, would be located in the index by looking under the A

¹Only ships of neutral countries have their names painted on the hull.

²Glossary of terms appears at the end of this article.

(engine amidships) section for the type F-MMM. This ship, the index shows, would be located somewhere on pages 7-16.

IDENTIFICATION BY TYPING. Masts, funnels, kingposts, and engines are the type factors to be first classified by the observer. The position of the engines is the least difficult to determine. The position of the engines is almost universally either amidships or aft and is betrayed by the location of the stacks or funnels. If these are located amidships, the engines are located amidships. If the engines are located in the aft section of the boat, that is where the stacks or funnels will be seen. Figure 1 shows the application of this step in typing a vessel. Ships with engines amidships are designated by the symbol A in the drawing over the amidships section of the vessel. When the engines are aft, the symbol B is placed over the aft section of the ship. In writing the factor symbols the engine's location is written first and followed by a dash, after which the outer symbols are written in the sequence and number of their occurrence.

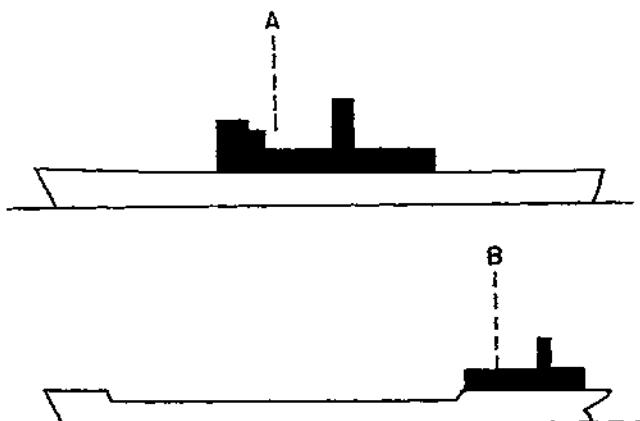


Figure 1.—Method of designating engines.

Figure 2 shows the application of funnel typing in the identification system. This step is concerned only with the location and number of funnels. In typing a vessel, funnels are designated by the symbol F above the section of the ship in which they are located and in the same sequence and number (see fig. 2). However, some ships have no funnels. These are designated as NOF. Such a vessel is illustrated in figure 2. Masts are classified in a similar style, with the number and loca-

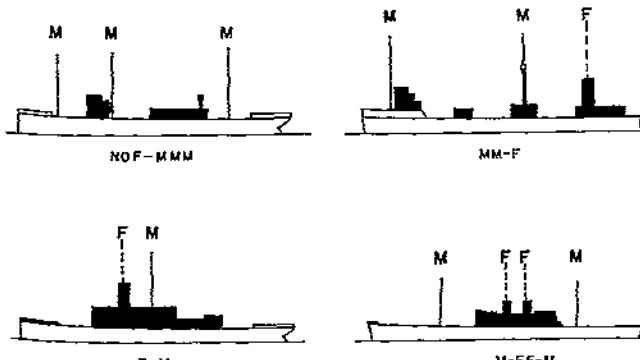


Figure 2.—Method of designating funnels and masts.

tion of the masts of the vessel clearly indicated by the symbol M as in figure 2.

The kingposts of a ship are important in the identification of merchant ships, but of all the factors they are considered the most difficult to identify. They are short, vertical, mastlike structures that support the ends of booms used in the loading and unloading of cargo. Their number and location are designated (see fig. 3A) by the symbol K. Figures 3 and 4 show the application of the typing portion of the identification system. Figure 3A portrays a ship that might be a freighter, passenger ship, or collier, as far as its typing indicates. This vessel is typed A-MKFKM, which means that it is a ship with the engine amidships; and that, from bow to stern, in order, you will see a mast, kingpost, funnel, kingpost, and a mast.

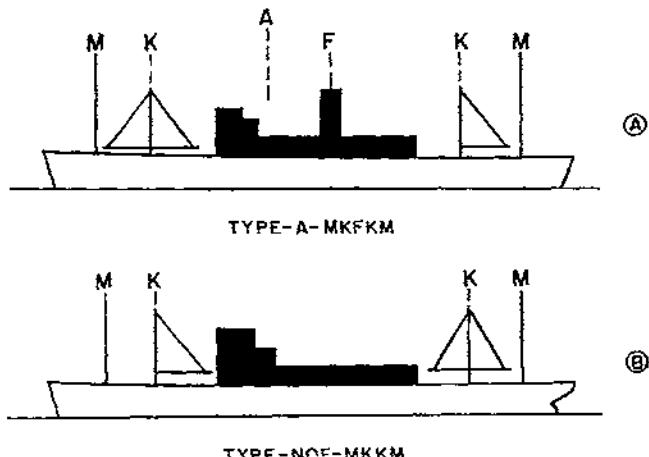


Figure 3.—Typing ships.

Ships with funnel classification NOF are generally sailing ships or Diesel-engine ships. In the case of the Diesel-engine ships, they are known as motor ships. Figure 3B shows a ship of this type classified as type NOF-MKKM.

Ships with engines aft may be coastal cargo vessels, colliers, ore carriers, or tankers. Figure 4A gives an example of a ship of this class, which might be a cargo vessel, collier, or ore carrier. Of course, vessels as large and complex as modern merchantmen have distinguishing features other than masts, kingposts, and funnels. Among these, all illustrated in figures 4A or B, are superstructure, center island bridge, well-deck, gangway, and forecastle. It is distinguished by the center island bridge, stern superstructure, and masts. This type of ship may or may not have kingposts, and the center island bridge may be a component part of the stern superstructure. This ship does not have tanker characteristics.

Figure 4B gives an example of another ship, somewhat similar to that shown in 4A, in the broad classification of ships with engines aft. This ship is a tanker, and it has the following distinguishing features: gangway, a distinct forecastle, and bridge amidships. It is typed B-MKKMKF. Another characteristic of this ship, which distinguishes most tankers, is the well-deck.

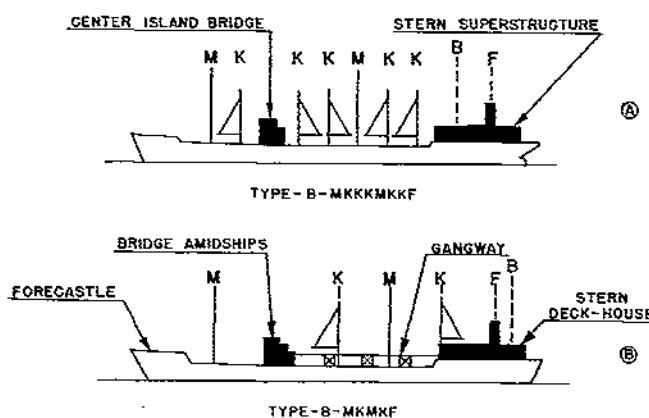


Figure 4.—Typing ships with engines aft.

Whale factory ships (fig. 5) are a very important class of ships, although small in number. These ships are distinguished by their bulky aft section and the slipway in their stern. They are potential navy auxiliary vessels, and may be equipped with motor torpedo boats, landing boats, or other small craft, to be discharged through the openings in the stern.

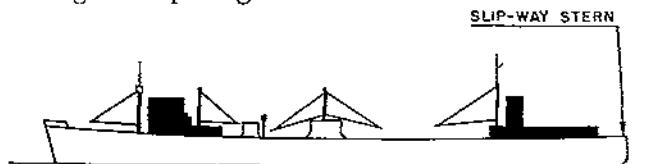


Figure 5.—Whale factory.

Frequent irregularities may be encountered in the FMK sequences when they are applied to actual ships. Some of these irregularities are portrayed in figure 6. In A, two kingposts are joined athwartship; that is, across the ship with a top mast. This feature is considered a regular mast from profile. B, in figure 6, shows kingposts in pairs athwartship. Since they are not joined by a topmast, these are considered one kingpost from profile. When kingposts occur adjacent to a superstructure, funnel, or mast and do not extend sufficiently above or beyond the adjoining structure to be visible as a distinct factor, they are not considered in the

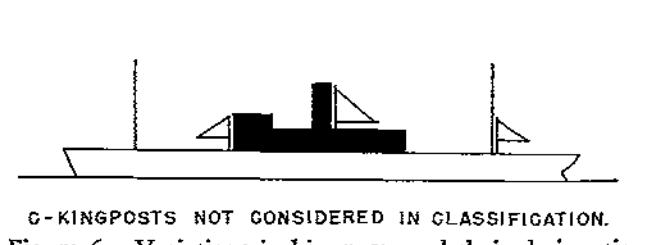
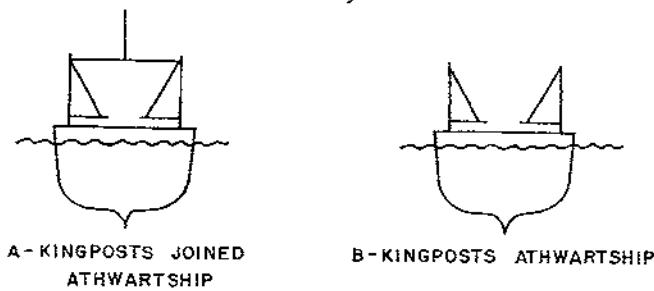


Figure 6.—Variations in kingposts and their designation.

classification. Examples of this construction of king posts are shown in C of figure 6.

Unusual features of deck cargo or structures that are capable of concealing a gun are noted by S in the typed sequences. This is illustrated in figure 7.

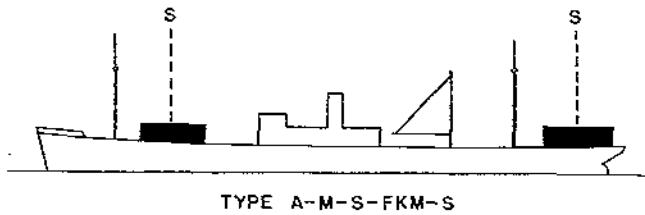


Figure 7.—Designation of structures capable of concealing a gun.

Ships produced for certain functions often have stand-out characteristics that assist in their identification by type. Examples of this are: (1) the position of the funnel and the engines in the stern portion and the long gangway amidships of the tanker; (2) the large superstructure of the passenger ship; (3) the long amidships section of the Great Lakes ore ship; and (4) the comparatively small superstructure, amidships engine, and funnel of the freighter. These are illustrated in figure 8.

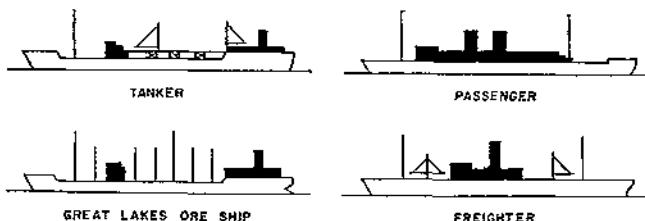


Figure 8.—Ships with identifying construction peculiarities.

IDENTIFICATION BY CHARACTERISTICS. As previously mentioned, besides the engines, masts, kingposts, and funnels, ships have other features based on peculiarity of construction that assist in their classification and identification. These, termed the characteristics of a ship, are denoted as (1) bow, (2) stern, (3) funnels, (4) superstructure, (5) deck, (6) ventilators, (7) electric cranes. Classification of the characteristics is based upon the peculiarities of construction of these features, and they are designated according to their numerical and alphabetic classification as shown in figures 9-15.

Various characteristic bow types are portrayed in figure 9. These are known, from left to right, as plumb, raked, maierform, and clipper bow. The maierform or ice breaker bow is peculiar to German and Dutch naval construction. Various stern characteristics and their designations are portrayed in figure 10.

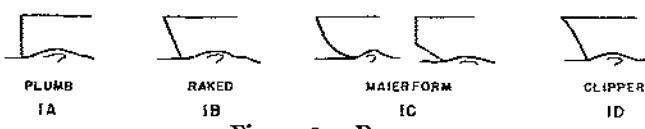


Figure 9.—Bows.



Figure 10.—Sterns.

Funnels appear in both classification groups. Thin funnels are usually associated with old coal-burning vessels. Squat medium-sized raked funnels are usually seen on more or less modern ships. Personnel should remember that dummy funnels are often placed on ships for the sake of appearance or for camouflage. Characteristic funnel types are shown in figure 11. Note: The square funnel is a peculiarity of French naval construction.

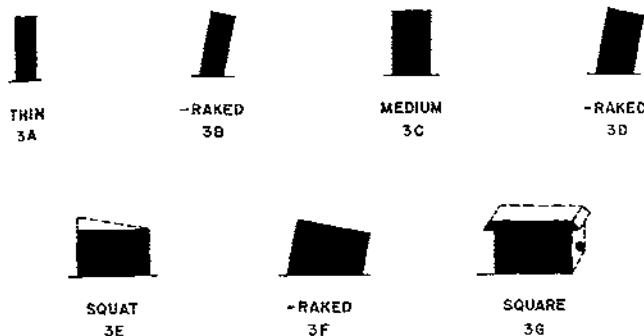


Figure 11.—Funnels.

In figure 12, superstructures are shown as they are used in the construction of commercial vessels. The development of funnels is also portrayed. The trend in recent years has been toward squat funnels.

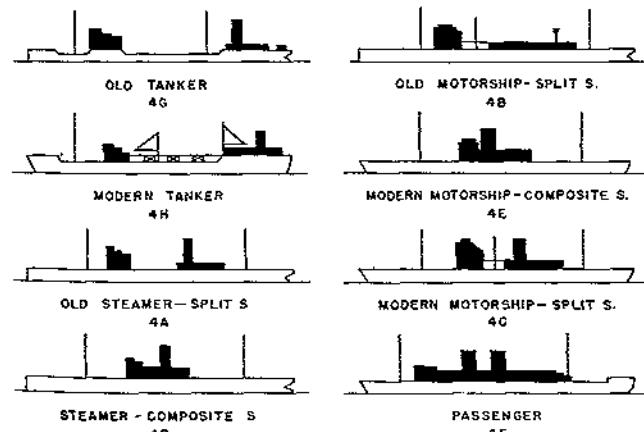


Figure 12.—Superstructure types.

Merchant ship deck construction is usually termed flush-decked or well-decked. Flush-decked ships are those in which the line from bow to stern appears to be unbroken the entire length of the ship. Well-decked ships are those which, when viewed in profile, have the line of the deck broken by one, two, or perhaps three wells or indentations in the deck line. Flush-decked ships with three islands may appear from the distance to be well-decked ships. If from a distance they appear thus, they are to be considered well-decked and so designated. The tanker in figure 13 (lower right) is an example of well-decked construction. All types that

do not have a distinct flush weather deck from bow to stern are well-decked. A ship with a high forecastle structure built in the hull is usually termed a ship with a broken deck line. The same term is applied to ships with a high aft or poop section built into the rear part of the hull. However, if the hull construction shows either or both bow or stern side plates raised slightly above the line of a continuous weather deck, the ship is considered flush-decked.

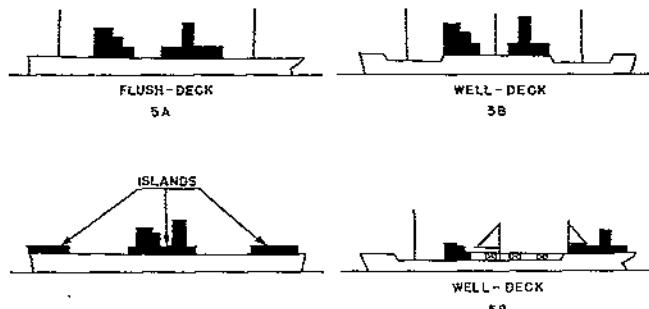
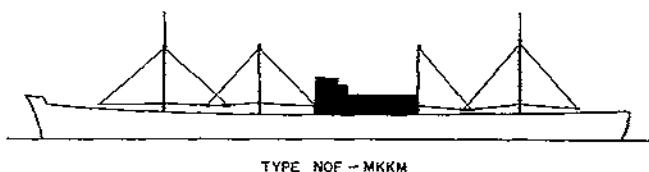


Figure 13.—Decks.

A good rule to follow in typing factors and in designating characteristics of a ship is that the factors and characteristics are not to be considered as they actually are, but as they appear to the eye of the observer.

TYPE NOF - MKKM
Figure 14.—Motor ship, flush-decked.

Merchant ships do not have any outstanding national characteristics, although certain construction of such features as ventilators and electric cranes may be found in ships of certain nationalities. At other times ships of the same nationality are lacking in such peculiarities. Figure 15 shows ventilators and electric cranes and the manner of designating them. The illustration indicates the peculiar characteristics and, in some cases, the nationality of the construction.

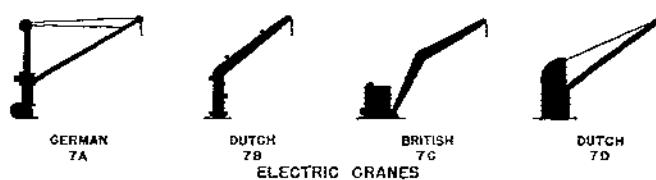


Figure 15.—Types of electric cranes and ventilators.

Figure 16 shows the complete application of this method of indicating the characteristics of a ship. A full description of the characteristics of the ship illustrated

will include: raked bow, cruiser-spoon stern, medium funnel, modern motor ship composite superstructure, flush-decked, cowl-type ventilators, and Dutch-type electric cranes. The description of this vessel in terms of symbols is type A-MFKM-S; the characteristics, 1B-2C-3C-4E-5A-6G-7D. The size of the ship, whether large, small, or medium, should be included in the description. Seagoing tugs, fishing vessels, and other classes of ships, usually small or coastal ships are classified and identified in a similar manner if possible, though few such ships are listed in the merchant ship manual.

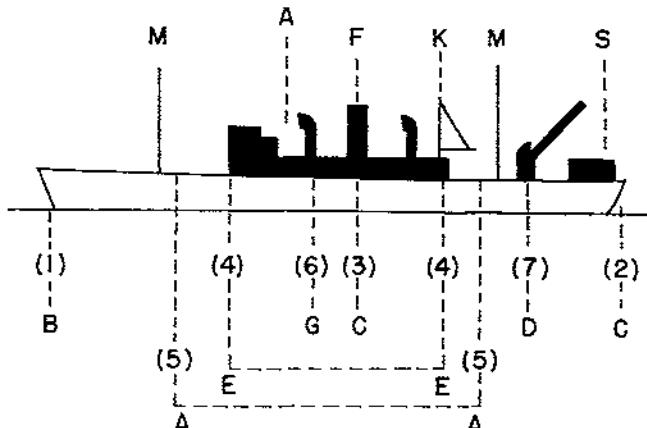


Figure 16.—Ship A-MFKM-S; 1B-2C-3C-4E-5A-6G-7D.

To review the process, if in doubt about the identity of a ship, the Coast Artilleryman should pursue the following procedure when identification by observation of the name and verification by signals is impossible:

- a. Make an estimate of the length of the vessel.
 - b. Note position of engines.
 - c. Note sequence and number of:
 - (1) kingposts
 - (2) masts
 - (3) funnels
 - d. Write down the type factors above, as (fig. 16) A-MFKM-S.
 - e. Identify the characteristics of:
 - (1) bow
 - (2) stern
 - (3) funnels
 - (4) superstructure
 - (5) deck
 - (6) ventilator
 - (7) electric cranes
 - f. Write down the characteristics as (fig. 16) 1B-2C-3C-4E-5A-6G-7D.
 - g. The observer should record the type and characteristics and transmit these to a point where the manual is available and an accurate estimation may be made of the ship's identity.
 - h. For the purpose of using the index to the manual, rearrange typing in order of funnels, masts, and kingposts. View the profiles on the page indicated in the index until a vessel is located with similar

characteristics. The vessel so illustrated in the manual, is probably the vessel viewed.

The United States is constructing thousands of merchant vessels which, it is expected, will more than counterbalance losses due to the enemy submarines. These vessels are being built by private and government shipyards, but the plans and specifications were prepared by the United States Maritime Commission. A number of classes of ships have been planned, and soon great numbers of ships of each class will be in use. The Coast Artilleryman should familiarize himself with the distinctive features of the United States Maritime Commission vessels. When the observer has accomplished this, his task of identification is greatly simplified, as these United States Maritime Commission vessels will soon constitute a high percentage of craft observed. (Their profiles are shown on pages 44 A and 44 B of the manual.)

The enemy is converting, and has converted, many merchant ships. They are used principally as armed raiders. The United Nations are also converting many merchant ships for naval and military purposes. There is often a decided change in the appearance of a converted ship. By the use of camouflage it is possible to change the appearance of a ship so that it cannot be correctly classified. This technique includes the addition of false funnels or superstructure to disguise the ship. The camouflage of ships to conceal and to disguise their features is very common; in fact, almost universal. There is no way of identifying disguised vessels as their appearance may change from time to time. The Germans have made good use of disguises to hide the identity of merchant raiders both in this war and the past war, and it is to be expected that the Japanese will do the same.

A record is made of all vessels spotted at specific stations on the coast, particularly at harbor entrances. An example of this record is shown in figure 17.

Figure 17.—Record of vessels spotted at harbor entrances.

In the application of the principles brought out in this article, the observer will find himself confronted with many perplexing problems. He will often first see

a vessel as it appears over the horizon. Then haze and distance will cause problems that will complicate the identification procedure. For example there is the difficulty frequently encountered in the identification of ships such as the Liberty ships that have a topmast erected on the athwartship section of kingposts stepped in pairs. At first the observer will see the kingposts only and not the masts, although ships with topmasts erected upon athwartship joined kingposts have those structures classified as masts because of their profile appearance. When the ship comes closer the observer will then see the mast, and any typing already done will have to be rearranged. Other problems that confront the observer are those caused by refraction which makes a vessel appear to ride high on the water or creates other distortion; those due to foreshortening, caused by the angle at which the observer sees the ship; and those caused by the height of freeboard, which depends upon the weight of the vessel. Naturally enough, a ship loaded rides much lower in the water than an empty one.

The observer must be trained in the practical application of the system, learn to anticipate problems, and make proper discounts for various conditions that call for the modification of decisions. He should study the Coast Artillery film strip, *Identification of Merchant Ships*, this article, and appropriate naval manuals, and actually memorize the profiles, characteristics, and type of ships frequently encountered. The use of the system at close range provides good practice in the mechanics of the system, but the observer must be further trained under the actual conditions that he will encounter. The goal of training should be to effect correct identification by deciding upon type and characteristics of a vessel at the earliest possible moment even under difficult conditions.

Glossary of Terms

Coast Artillerymen who are required to become proficient in the art of ship identification should first master the simple glossary following:

Aft.—The rear portion of a ship. Also used to denote location in rear of some part of a vessel.

Amidships.—In or toward the middle of a ship.

Athwartship.—Direction crossways of a ship.

Bow.—The front portion of a ship.

Bridge.—The structure usually in forward portion of a ship from which the navigating of the vessel is directed.

Characteristics (ships).—The kind of construction of bow, stern, funnels, superstructure, deck, ventilators, and cranes.

Deck.—The floor-like covering of the hull of a vessel.

Electric crane.—A device utilizing pulleys and chains in the handling of cargo.

Flush-deck.—A deck constructed so that when viewed from profile it appears as a single straight or curved line from bow to stern.

Fore.—Front section of a ship. Also used to denote location in front of some part of a vessel.

Forecastle.—The part of the upper deck or superstructure forward of the foremast.

Foremast.—The forward mast of a ship.

Funnel.—The tubular pipe erected on the deck or superstructure for carrying away the smoke. Commonly called the smokestack.

Gangway.—A railed footpath from one part of a vessel to another, usually found in vessels such as tankers or ore boats, where walking on the deck would be treacherous.

Island.—A structure on the deck of a ship isolated from other parts of the other deck construction.

Kingposts.—The posts used for attaching the booms of cranes used in the handling of cargo.

Mainmast.—The principal mast of a vessel, usually the second mast from the bow, whether a vessel has two, three, or more masts.

Motor ship.—A ship driven by Diesel-electric, Diesel, or gasoline motors.

Stern.—The rear portion of a ship.

Superstructure.—The portion of the ship that extends above the line of the deck. In a passenger ship it is quite large and contains cabins and living quarters.

Tanker.—A ship with the hull divided into compartments for the carrying of oil, molasses, or other products.

Topmast.—The second mast from the deck. In steam vessels, a mast erected from another mast or other support as the athwartship connection sometimes used between kingposts.

Type (ships).—A term used to denote the masts, funnels, and kingposts whose sequence and number are the basis of the system of ship identification.

Ventilators.—A device for carrying air to various interior parts of a ship.

Weather deck.—A deck exposed to the weather.

Well-deck.—A deck constructed on several lines. The line from bow to stern appears to be broken by several steps or indentations, when viewed in profile.

Whaleback.—A vessel having the sides curving in towards the center.



Britain's AA Defenses

By Major General P. J. Mackesy

Although in peacetime England had a few small Regular antiaircraft gun and searchlight units, designed to accompany a tiny expeditionary force, antiaircraft defense has always been based upon the Territorial Army. From 1919 to 1923 there was in effect no anti-aircraft defense in this country at all. Then, in 1923, a modest start was made and a few Territorial Army units were raised.

At the time of the Munich crisis in the autumn of 1938 our position was dangerous to a degree. Until 1939 equipment was on an absurdly meagre scale, and it should be far more widely known than it is that battery commanders at that time repeatedly dipped into their own pockets to buy training apparatus.

Even despite these difficulties keenness and enthusiasm were excellent and the standard of training reached a high level. Great credit is due to all those who helped then to lay the foundations upon which was built the great subsequent expansion of the Antiaircraft Command.

In 1939 many new units were formed and the outbreak of war found the position improved enormously, though much remained to be done and much was required. Divisions had constantly to subdivide to form the basis of new divisions; units, barely trained, had to

part with men to form the nucleus of new units; in many cases raw recruits came up for training in battle positions. All the time new equipment and devices were coming into use.

Units, moreover, had to be prepared for service abroad and despatched. It is all too little realized that the great majority of the antiaircraft units who have played so valiant and vital a part in the great defense campaigns of this war—including the defense of Malta and besieged Tobruk—have been detached from the Antiaircraft Command at home. It is a gallant and proud record.

The Battle of Britain came as the first test of our home defenses. How they withstood the enemy may be illustrated by one example. Our light batteries at Dover took such toll of the low-flying German aircraft that the enemy resorted to heavy, direct attacks on their gun emplacements to try to clear the field.

In what may be called the Battle of London, which followed the Battle of Britain, it would be fair to say that both London and Liverpool were saved by antiaircraft troops.

Millions of Londoners will gratefully remember all their lives the roar of guns which met the German attack on the evening of September 10. The weight and intensity of the fire must have astonished the Germans as much as it heartened London's population. Morale

*Reprinted from the London *Daily Telegraph*, July 22, 1942, by permission of the editors.



Suez



Gibraltar

rose, or rather leapt, 100 per cent; everywhere people were saying, "Thank God we are fighting back." One of the best tributes was the remark, "When I heard those guns last night I slept peacefully."

Liverpool suffered heavy raids; it was, in fact, attacked on seven consecutive nights, which is believed to be a record. Damage was severe, of course, but the docks, vital to England, were able to continue working.

It will be remembered that in those early days of the "blitz" on this country the night fighter technique had not reached its present state of efficiency. The brunt of the battle was borne by the ground defenses.

It is hard for guns on the ground to burst shells on a target probably travelling at over six miles a minute at

a height of some six miles. Yet one antiaircraft brigade alone in this country recently destroyed its 200th enemy aircraft.

This total includes only those machines known for certain to have been destroyed. Before claims are allowed they are subject to a scrutiny as strict as that applied to claims by fighter pilots; Fighter Command, which is in supreme control of all the air defenses, is the deciding authority.

Many more than the 200 are known to have been hit and damaged; a considerable proportion in all probability never reached their bases.

Such is the record of only one antiaircraft brigade out of many. In all over 630 enemy aircraft have certainly

been destroyed by AA fire over Great Britain since the start of the war.

The value of the work of the ground defenses is not to be measured, of course, merely by the number of machines they hit. It is their business to prevent the accurate bombing of vital objectives and to break up formations of bombers to facilitate our fighters' work.

Bombers in formation can bring powerful fire to bear upon attacking fighters, but if the formation can be forced to open out and lose cohesion by antiaircraft fire the fighter finds his job greatly simplified.

It should not be supposed, by the way, that the battery personnel lead by any means a sedentary life. All the men are intensively trained on "commando" lines to ensure the right fighting spirit. If circumstances brought the two sides into contact a surprised enemy would find himself at grips with the equivalent of first-line infantry.

Perhaps the most striking development in the expansion of our ground defenses has been the embodiment of ATS personnel as combatant members of antiaircraft batteries.

This revolutionary innovation was started in a small way some two years ago. Today there are a growing number of mixed batteries.

The establishment of the one I visited lately was roughly one-third men and two-thirds women who carry out all duties except the actual firing of the guns—although, in a hot action, they have before now helped to keep the guns supplied with ammunition.

Normally the women's duties include driving and maintaining transport, sentry duty (as a rule by day only), despatch riding, telephone operating, range finding of every kind, and work in fire control positions.

Each mixed battery has three ATS officers charged

with the discipline, welfare and administration of their detachment. Operationally the women are on the same footing as the men, entirely under the battery officers.

Socially the experiment is undoubtedly a success. As regards the women's reactions in action I cannot do better than quote the words of the commanding officer of the first mixed battery to bring down a German plane. "As an old soldier," he said, "if I were offered the choice of commanding a mixed battery or a male battery, I say without hesitation that I would take the mixed battery. The girls cannot be beaten in action at their own duties."

"Beyond a little natural excitement, which only shows itself in rather humorous and quaint remarks, they are quite as steady as the men."

Further opportunities for ATS girls to undertake the invaluable operational rôle in antiaircraft units are certain to occur. Every woman so employed not only plays a direct fighting part in the country's defense but frees a man for service overseas, where antiaircraft reinforcements are likely to be needed more and more.

It would certainly be an incentive to women to volunteer if they were allowed the title and badges of the Royal Artillery. They thoroughly deserve them, and no considerations of tradition or ill-founded prejudice should stand in the way of an innovation which would be both popular and logical.

Women are not at present employed in what could be called a combatant rôle with searchlight batteries, although they may be in course of time. The searchlights play a part of the highest importance. Old-fashioned apparatus of the early days of the war is fast disappearing, and the batteries' primary rôle is now to co-operate with night fighters.

Most of the searchlight personnel live and work in



Malta

isolated positions far from comforts and the amenities of home life. They do not enjoy either the glamour or the excitement which falls to the lot of the gun detachments; yet their work is not in the slightest degree less important.

A searchlight may "hold" a plane for three minutes and not one member of the detachment may be able to see it; yet, thanks to the skill of each individual and the team work of the whole, that plane may well be destroyed. It may be below or above cloud: skilled work

will follow it; the night fighter will have a good chance of a kill.

Another task for the searchlights is to guide home our returning bombers under bad weather conditions.

At home, in Malta, in Tobruk, in Burma, in Malaya, indeed throughout the battlefields, units from AA Command have fought and are fighting with a skill and courage which should be a source of pride to themselves and to the commander who has done so much to organize, train and equip them.



"Antiaircraft gun and searchlight batteries play a vital part in our home defense system, and the safety of this island depends greatly upon the devotion and skill with which the men and women who man these posts perform their duty.

"Their vigilance cannot for a moment be relaxed. Though we do not in the present lull hear their guns or see their searchlights so often as we did, they must still remain at their stations, constantly on the alert, and ready for instant action.

"These men and women, standing to their guns and searchlights in summer and winter at a thousand posts throughout the length and breadth of the country, deserve our gratitude. They have served us nobly and with all too little public recognition of their prowess and devotion.

"They have taught the enemy a bitter lesson in the past. In the present lull they continue to take their full toll, and I know that they will do so with ever increasing success if and when the enemy increases his bombing effort against this country."—AIR CHIEF MARSHAL SIR SHOLTO DOUGLAS, Commander in Chief, RAF Fighter Command.

Enemy Antitank and Tank Tactics

By Lieutenant Colonel Frank L. Lazarus, Coast Artillery Corps*

EDITOR'S NOTE: The use of AA guns in antitank fire as a secondary mission has become a vital consideration in the training of AA units. The tactics of antitank and of tank operations are therefore of prime importance to AA personnel.

GERMAN ANTITANK PRACTICES

The Germans emphasize that the strength of defensive areas depends chiefly on the surprise effect obtained from the siting of their artillery. Camouflage is considered very important to keep defenses completely hidden from the enemy. To increase the element of surprise, all antitank weapons are instructed to open fire only when they can be reasonably certain of success. Even after the 88mm dual-purpose guns have already opened effective fire, the 37mm and 50mm antitank guns may remain silent so as not to be observed by enemy tanks.

In the matter of secrecy, German doctrine teaches that the battle situation may necessitate the withdrawal of AT detachments in the defense area and their subsequent use in a mobile rôle or in new positions. And, of course, the Germans, where desirable and necessary, make consistent use of AA guns in AT rôles.

Mobile antitank fire is of increasing importance in all armies. In Libya, for example, the Germans have sometimes mounted their 88mm dual-purpose guns on the chassis of obsolescent Mark I and II tanks, advanc-

ing these guns under cover of the heavy guns of their Mark IV's, in duels against British positions. In the Middle East, when on the defensive, the Germans, according to somewhat meager reports, use AA guns against British tanks in the opening stages of an attack.

According to British reports from Libya, Axis antitank guns, in particular the smaller calibers such as the Italian 20mm Breda, are extremely well sited and dug in so that the muzzles just clear the ground. The guns are usually located on a reverse slope or across a small depression where they have at least a 400-yard field of fire and can catch tanks coming over the rise to the front. To heighten security and secrecy, the Germans sometimes have AT detachments remain under cover, in positions of readiness, until they are needed at their gun positions.

GERMAN ARMORED FORCE PRACTICES

The tactics of the German armored force vary to meet specific situations. Nevertheless, certain broad rules have been laid down and are followed whenever circumstances permit. Some of the more outstanding rules for the operation of the German armored force are listed briefly in this section; and these notes may help to prepare AA units for possible service in the rôle of AA-AT defense.

German ground reconnaissance falls into three main types—"operative," "tactical" and "battle." The first type, *operative*, covers a large area with deep penetration; its mission is mainly to locate hostile troop dispositions, hostile armored vehicles and transport. This re-

*Colonel Lazarus is AA-2 of the AAA Command, EDC. This article was prepared as a portion of an Intelligence Memorandum for that Command.



German 37mm antitank gun.

reconnaissance is carried out by the motorized reconnaissance battalion, which consists of armored cars and motorcycles in sufficient strength to break through hostile resistance in the area to be reconnoitered. An AT platoon, a heavy machine gun platoon and a motorized platoon of engineers are usually to be found in support. This type of reconnaissance is employed up to one day's march—ninety miles or more—to the front.

Tactical reconnaissance is carried out in the area behind the operative reconnaissance. Functioning up to twenty miles ahead of its own troops, it seeks to determine the organization, disposition, strength and flanks of hostile deployment.

Battle reconnaissance is participated in by all units as they approach the enemy. Infantry scouts are the last wave of the battle reconnaissance. The three types of ground reconnaissance, it is clear, are predicated on an open, fluid and non-static situation at all times.

Antitank units now form a conspicuous part of the attacking German armored division. The AT battalion, as a result of its speed, mobility and protection against both tank-destroyers and tanks, is used to attack TD (tank destroyer) and armored vehicles alike. Its mission is to overcome TD and tanks attacking from unexpected directions. It can assume the task of neutralizing AT defenses, thereby supporting its own tanks. It may be used against both personnel and fortified centers of resistance, including loop holes in hostile bunkers or emplacements. In major attacks, it is employed in companies or as a battalion in mass formation.

German artillery follows the tanks as direct support in every situation. The artillery seeks to neutralize hostile TD and AT defenses before the attack in order to blind hostile observation posts with smoke, execute counterbattery fire and neutralize islands of resistance passed over by the advancing tank units. Thanks to armor protection and mobility, the artillery is able to follow tanks within range of enemy infantry weapons. Armored cars are used as mobile observation posts to direct the artillery fire supporting the tanks.

The AA battalion can provide only partial antiaircraft protection for the division and is therefore concentrated at especially threatened localities. As already mentioned, the AA battalion may also be used in AT defense, especially when the AT battalion does not have guns effective against tanks at the longer ranges.

The main attack of the German tank brigade is divided into three waves or echelons of tanks, each echelon numbering light, medium and heavy tanks. The more important functions of the first wave, which contains a larger number of light tanks than the two following, are as follows:

a. Draw the fire of hostile AT and TD guns and destroy them after closing in at short range from a flank or blind spot.

b. Fight the infantry only when the infantry interferes with the echelon's mission.

c. Advance with the support of all weapons of the

armored division, especially the artillery and heavy infantry weapons and, occasionally, fighter planes and dive bombers.

The light tanks of this echelon cover the flanks and protect the medium and heavy tanks. This action may be compared to that of American infantry flank patrols in an infantry advance.

The medium tanks of this echelon usually open fire at long range and support the leading light tanks from a distance up to 2,000 yards. Each medium platoon advances by bounds, one section firing from position while another section advances. (This form of covering protection cannot be given after the leading tank is within 200 yards of the target.) In the first wave medium tanks fight mainly from "position" (stationary—usually under cover of some irregularity of the terrain) and are used in the center of the attack only and not on the flanks.

Heavy tanks in the first wave are employed for special missions that light and medium tanks cannot undertake. For example, they are used in wooded areas to increase the crushing power of the medium tanks as well as against centers of resistance, armored cars, cargo vehicles, etc., which may have been concealed in wooded zones. They are also used to meet TD attacks or counter-attacks and will deviate from their original mission for that purpose.

The Germans figure that the average Nazi gunner firing AP shell will make four hits out of eight shots at 600 yards from a stationary tank. Their machine gunners, they estimate, will average forty hits out of seventy-five shots from a halted tank. Hits from a moving tank are regarded as a matter of chance.

The mission of the second wave is to overcome infantry targets, reserves, command posts and observation points. It has special instructions to silence all hostile TD and AT guns that may have escaped the fire of the first wave. The second wave may have to search out such hostile guns, for the chances are that the defending forces will have taken cover after the first wave's attack. Therefore, the tanks of the second wave often come to a halt in order to look closely for hidden defenses, visibility from moving tanks being limited.

The third wave advances with the infantry riflemen but is not under infantry control. The third wave's mission is to assure the orderly advance of the infantry and eliminate any machine guns not destroyed by the preceding waves. Riflemen indicate suitable tank targets to the platoon leaders by firing tracer ammunition, and the tank platoon leaders, using binoculars, watch the terrain very closely from the tank turret. Hostile fire from enemy TD or infantry can lessen the tank leader's control and effectiveness.

German tanks are normally employed in mass along a broad front and in great depth, and their advance is not limited to the speed of the following infantry as the effect of mass shock would thus be lost. All arms support the attack.

Tank units are trained to make long, orderly and fast



Italian 47mm light antitank gun.

marches. Night marches are much used as it is difficult to conceal tanks from daylight observation. The Nazi units are trained to make marches of from fifty to seventy-five miles after dark and to arrive at an assembly point ready for attack at dawn. A division can move 120 miles with full track vehicles or 210 miles with other vehicles in a twenty-four-hour period. In Libya the Germans have seldom attacked by night and their daytime advances have sometimes been wiped out by British counterattacks at night.

The German art of command lies in the selection of the exact moment for battle so as to reach an objective with maximum speed and minimum losses. Foresight and careful planning are exerted in reconnaissance and choice of battleground. Individual commanders are kept informed of the higher commanders' ultimate intentions and are therefore able, if cut off in a rapidly moving situation, to make individual decisions in accordance with the general plan.

The German doctrine of pursuit emphasizes that all factors, except annihilation of the opposing force, should be disregarded. Defending units can expect forces of great mobility to be sent around one or both flanks, depending on the terrain. German armored units will be used against hostile columns in retrograde movements and to seize defiles, bridges and favorable observation and vantage points deep in the hostile area.

While the Germans recognize that deep penetrations expose long flanks, they do not permit anxiety to impede bold action. They attempt to screen their flanks through counterreconnaissance and endeavor to cover them by air support and artillery.

JAPANESE ARMORED FORCE TACTICS

The Japanese have no armored force to compare, in size and elaborate organization, with that of Germany, Russia or the United States. In their Southwest Pacific campaigns the Japanese used tanks effectively but sparingly, and in China they used small-scale armored units fairly often. Mechanization in the Japanese army is now increasing, and the armored force may be expected to play a larger rôle in Japan's warfare.

Japan's armored force is apparently built around the tank regiment, consisting of 147 tanks, both light and medium. The regiment is organized into a headquarters and three tank battalions, which is made up of three companies of four platoons each. Three of these platoons are medium tank units, the fourth a light tank unit.

Divisional tank companies are organized as both light and heavy companies. The light company consists of one command tank, four tank platoons of three tanks each, a work tank and several motorcycles. The medium tank company has a similar organization, except that a fifth platoon, made up of five tankettes, is added.

In China the Japanese have employed a so-called flying column of mechanized units. Its organization has evidently not been fully decided upon, but the force generally includes tanks, motorized infantry, antiaircraft and field artillery, antigas and signal companies with observation aircraft occasionally attached. This is seemingly Japan's nearest approach to the elaborate armored forces of the western powers.

To date the Japanese have only infrequently used the

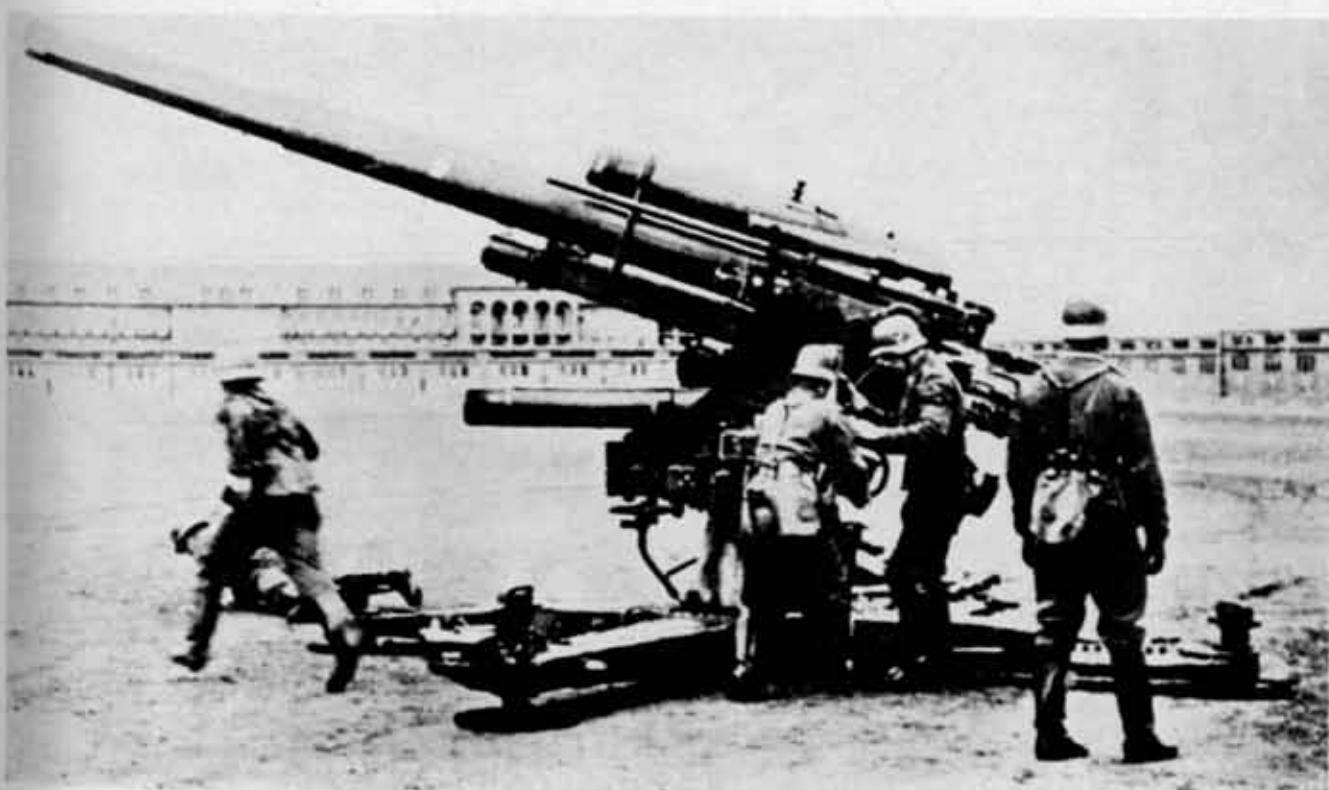
tank as a fast-moving weapon for independent missions. Japan's tanks usually accompany and support the infantry and may turn around to give the infantry closer support if they get at all far ahead. The tanks are brought up from the rear with all possible secrecy and are generally assembled at points three miles behind the proposed line of departure. Formations aimed at obtaining the effect of mass are achieved by disposing the tanks in waves across the front of the infantry unit to which they are attached. Moving forward, closely followed by the infantry, the tanks are supported by the artillery, which seeks to neutralize enemy antitank weapons by fire power and smoke. The tank objectives are obstacles blocking the advance of the infantry, automatic weapons not neutralized by the artillery and, eventually, the hostile artillery and command posts. In a very favorable situation the tanks may be sent out ahead of the infantry in order to upset the hostile deployment and to confuse the hostile command system.

Most of Japan's experience with tanks has been acquired in China, where she has used pursuit and exploitation tactics which, though conducted on a small scale, closely resemble those of Germany. In Burma, Java and Malaya, generally unfavorable tank areas, the Japanese chiefly employed tankettes. They were used in wave formation to break up enemy concentrations along the main roads. Surprise and cunning marked their employment, which often led to considerable gains. While the tankettes preferred to stay on highways and adjacent terrain, they occasionally negotiated difficult swamps and rice fields.

The Japanese have used small groups of tanks—usually from three to five—in direct frontal attacks to assist the forward advance of the infantry. When the infantry has attained its objective, the tanks have been withdrawn. All these tanks are a light type except the leader, which is a medium. In Malaya these groups were sometimes composed in whole or in part of armored carrier vehicles with one medium tank employed as the leading element. The missions generally assigned these groups were clearing enemy troops and obstacles off roads and creating confusion among the defending troops.

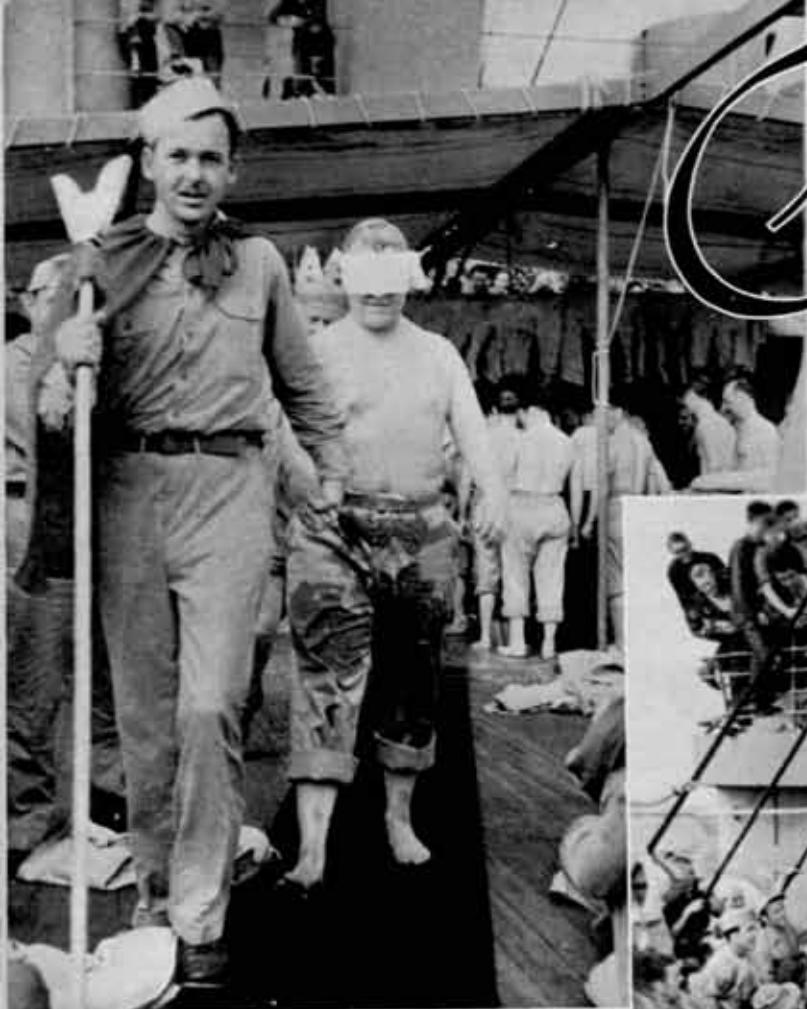
The groups sometimes attacked in as many as four waves. The leading wave sought, without stopping, to engage vehicles and personnel on or near the road, while the rear groups halted on the road and opened fire when opposition was encountered. Their fire usually was inaccurate and casualties were light. After brief engagements the groups would move by roads deeper into opposition territory and engage other troops in a similar manner, particularly directing their efforts at troops in the rear, at artillery, at command posts and supply installations.

There seems to be every reason to believe that the Japanese, if they can expand their tank production, will make increasing use of the armored force. If their successes in China, Malaya, Burma and Java are any criterion, they will use it boldly, cunningly and well. At the present time, however, the Japanese cannot be ranked among the outstanding employers of the tank and the armored force.



The famous German "88" AA gun, used also for AT.

Crossing



King Neptune's chamberlain leads a candidate to the next step in the ceremony.



The next step—and a long one it is.

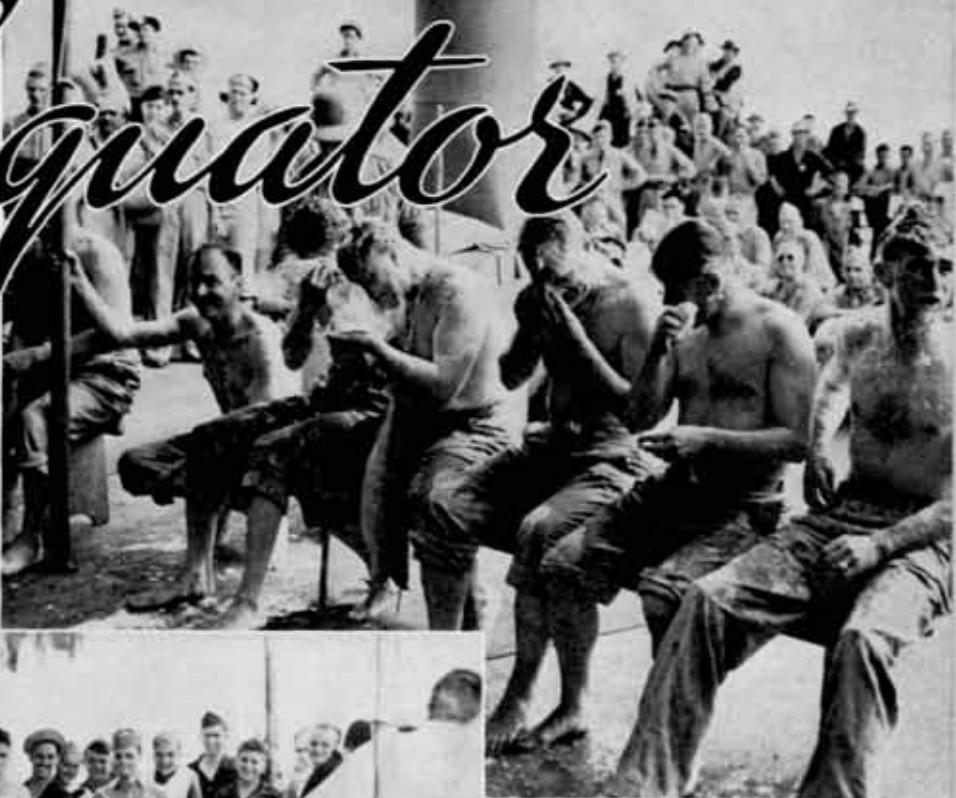


The Royal Barbers lather a lieutenant with a novel shaving brush.

the Equator

War isn't all grim seriousness. American troops on their way to an active front take time out to pay homage to King Neptune with traditional and solemn ceremony.

Signal Corps Photos



↑ Six officers in a row.
Sherman was right.



↑ Several queens seem to have become participants in the occasion.

→ Something fishy here—and the PFC seems to have "gotten" it, right in the face.

S-2

VS.

THE

WEHRMACHT

By Lieutenant Colonel John R. Lovell, Coast Artillery Corps

The G-2 or S-2 is the Commander's expert consultant on the enemy. It is the duty of the intelligence officer to be familiar with all things enemy and to think in terms of the enemy. When the enemy is about to initiate an operation or take on military action, the intelligence officer should be the first to give timely warning to the Commander concerned.

The purpose of this article is to present an outline of the essential information that the combat intelligence officer should have when on the battlefield against German forces.

The strategic and tactical principles described in this article apply also to the Japanese who have modeled their military employment after the Germans. Japan and Germany exchanged military missions many months before the Japanese attacked the United States last December.

The methods of German military employment are simple and, at the same time, quite flexible. They must be simple in order that the mass development and training of military leaders may be possible; and they must be flexible so that a satisfactory solution may be had for all the situations they may encounter. Without an explanation of their methods, their entire military system is quite confusing unless their organization and command methods as well as their tactical and strategical principles are understood.

German military organization is based on the *Einheit* System. By this method, pools of basic units are mobi-



lized. In a larger sense, these basic units are the various types of divisions and GHQ organizations.

According to the estimated needs, units are taken from the pools to form task forces. They are assembled and trained in areas resembling as closely as possible those in which they are expected to engage in combat. They are molded into smoothly functioning, hard-hitting combat teams for the accomplishment of specific tasks.

When the units from the pools are allotted to a task force, they are placed under one commander. Elements from all branches of the service, that is, Army, Navy, and Air Force, function together in the same task force under one commander as if they all wore the same uniform. Rivalry between the components of the task forces is discouraged rather than encouraged. All leaders encourage and inspire every individual with the idea that all must work for the common good of the entire combat team.

The term, task force, is used frequently to designate many different kinds of forces. To the German, a task force has a very definite meaning.

The task force is a military force composed of the necessary arms and services under one commander for the accomplishment of a single specified mission.

German task forces vary in size from a squad to a group of armies. Examples of task forces are Oberst (Colonel) Mikosch's reinforced pioneer battalion which captured Fort Eben Emael in Belgium and later broke

through the Maginot Line near Saarbruecken; Rommel's corps in North Africa; von Falkenhorst's command in Norway; and von Brauchitsch's army groups in the West, the East, and Poland.

With regard to the manner in which the Germans employ task forces, there are several important features to point out.

Almost every German organization in combat is reinforced by GHQ units. This is shown graphically on the organization chart which follows.

These units are trained together so they will function well in the confusion of modern combat.

All forces engaged on any specific mission are under one commander.

Two or more task forces are never assigned to the accomplishment of an identical mission. This explains why defensive aviation, antiaircraft artillery, civilian air-raid-defense organizations, and the warning services engaged in the antiaircraft defense of a specific objective are under one commander. It also explains why the coast defense artillery is organically a part of the German Navy.

A military commander charged with a definite mission is in absolute control of all the means to accomplish that mission. He is responsible only to one authority for the outcome and can have no excuse for failure.

exploited in the shortest time with all of the resources of the command. On the defense, every resource can be used to meet a military emergency until the time can be gained to resume the attack.

German divisions, corps, and armies are the command frameworks around which task forces are formed.

The division is a unit of all arms and services under one commander containing the minimum means for the accomplishment of certain types of missions. When the need arises for a new type of division, the German High Command forms it. Thus, we find numerous kinds of combat divisions: panzer, infantry, light, motorized, mountain, border, police, line of communications, and fortress divisions. There may be others. These combat divisions are organized, trained, and equipped for special types of missions. They contain only the minimum needs to sustain themselves in combat under normal conditions.

Corps and armies are merely command skeletons around which larger task forces are built. Organically, these units contain only commanders, staffs, and signal units. The practice of holding the size of the subordinate units of the different arms in a standard organization to the minimum is economical as well as effective. It enables the maximum combat power to be applied at the selected vital points while holding units have the minimum needs to perform their missions.

A good example to illustrate the German method of military organization is the way the Luftwaffe handles its air fleets. Germany has organized air fleets in all of the active theaters of war: France and the Low Countries, Denmark and Norway, the Mediterranean and



"The breakthroughs are made by special assault troops."



"Every unit has its objective, its mission."

A last word about unity of command. American observers on European battlefields have noted that unity of command is a weapon in itself, the same as terrain, weather conditions, and other factors. With a unified command on the offensive, an enemy weakness can be



North Africa, on the East Front behind each group of armies and in Germany proper. These air fleets are administrative and tactical organizations. In each air fleet area, there are ground crews and facilities for handling a large number of combat aircraft. Germany's air power is shuttled around these air fleets according to the situation. If a serious air threat loomed in the west, combat aviation could be transferred from the other air fleets to the west on short notice. Antiaircraft organization and employment is identical in principle. There is usually an antiaircraft corps in each air fleet.

A German principle of command is enunciated as follows:

"Select the commander, assign him to the mission, give him the means, and permit him to accomplish the task unhampered."

This is merely another way of phrasing the unity of command and responsibility and the task-force principles.

After a commander has been assigned a mission, he selects his staff (which may include members of the Army, Navy, and Air Force General Staffs), adopts a general plan and from it, prepares a list of means with which to accomplish his task. The main considerations in the preparation of the list of means are:

1. The Mission (Offensive or defensive.)
2. The Enemy Organization (analysis for weakness).
3. The Terrain Strength (Particularly in various arms).
4. The Climate, Season, (Russia in winter or North Africa in summer.)
5. The Time Element Composition (Air Power and Tanks).
6. The Theater of War Dispositions (Where can traps be formed and enemy destroyed?).
7. The Means Available Leadership (Higher, Field, and Company grades).
8. The General Plan Morale (Can propaganda be used?).
9. The Judgment of the Commander and his Staff. (Desert, Swampy, Normal, or Mountainous.)

The German High Command allots the means to the task force commander after a similar consideration of the foregoing factors.

When the means are made available, they resemble a college football squad which reports to the coach in the first week of September. They are a squad but not a team.

A German task force prepared for combat is like an Army football team prepared for the Navy game. It is organized, drilled, and trained for the task at hand—to defeat a particular opponent. As a matter of fact, the same considerations outlined earlier for the composition of a German task force may apply equally well for the football team.

When the means are allotted to a task-force commander, all or part of them are reallocated to subordinate echelons in accordance with their estimated needs. Thus any standard German unit in combat will normally be reinforced. Intelligence officers can readily understand why the composition of practically every German unit with which they come in contact will be different. The problem then is to probe by aggressive reconnaissance methods to determine what units are opposite, how they are organized, and of what they are composed.

The following diagram illustrates the method by which large German task forces are formed.

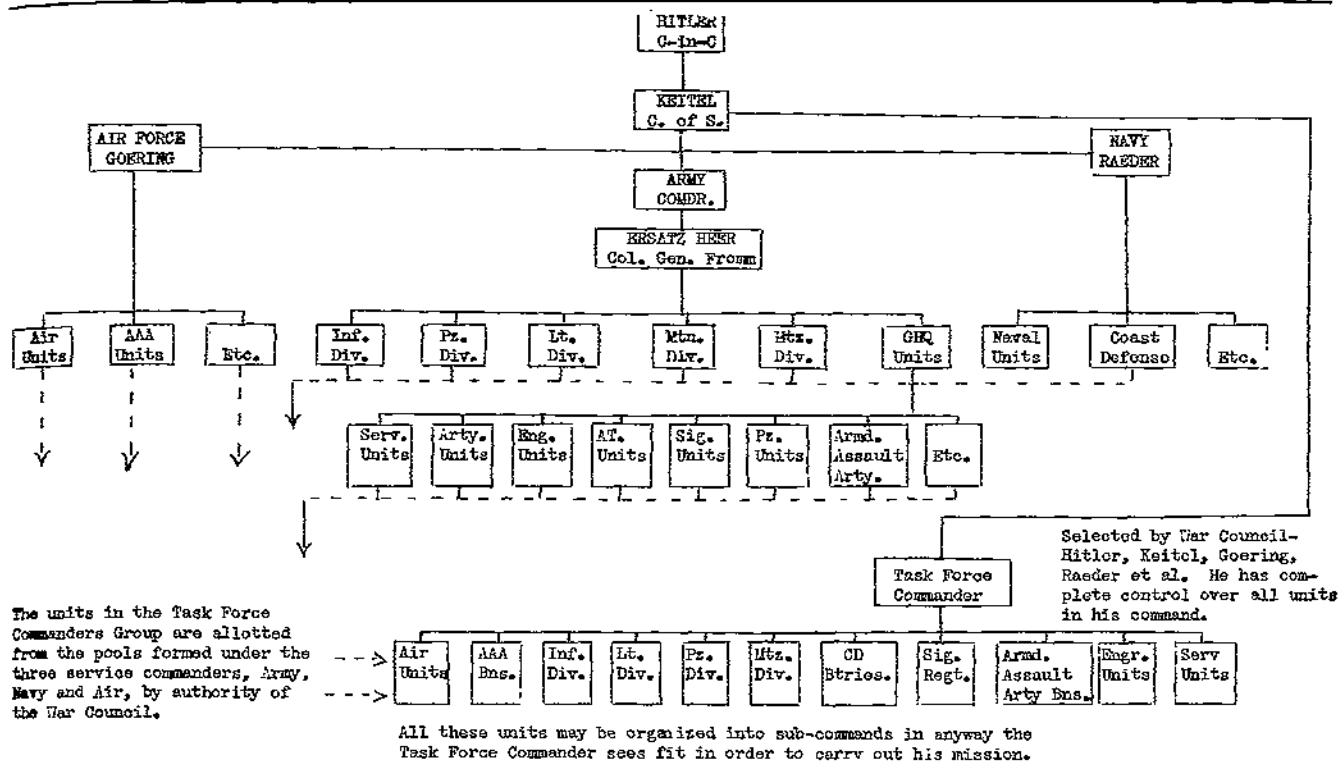
Just a word about the designation of units. The method of allotting numerical designations is without pattern. It is different in almost every case encountered. No deduction based on numerical designations is justified without other supporting evidence.

When a standard organization such as a regiment, division, or a corps is not used as the nucleus of a task force, the cluster of units is often called a "Gruppe" (Group [of units]). Often the name of the commander is attached to identify it.

German strategical and tactical principles are similar. They are based on the principle of annihilation as evolved by von Clausewitz, and as carried into execution by Graf von Schlieffen in his military textbook *Cannae*.

The principles of war, according to the German conception, are unchanged; the methods whereby they are realized are different.

During World War I, the Germans used the supporting arms to advance the infantry to where it could come to grips with the enemy infantry, and destroy it or drive it from the field. In this war, the German supporting arms are used to destroy the enemy without forcing the infantry to engage in combat. The break-throughs are made by special assault troops (usually pioneers); air panzer-motorized infantry teams, powerfully supported by artillery, blast their way through to make the encirclements, and the annihilations in the traps are accomplished largely by the fire power of the supporting arms. The infantry follows up, holds the ground, and takes charge of the prisoners. Large masses of infantry do not come in contact with each other with the resulting mass slaughter reminiscent of Verdun in the first World War.



No description of German tactics and strategy is complete without special mention of the Principle of Surprise. Measures to achieve surprise are taken in every German military action.

German military texts state that surprise is accomplished:

- By secrecy
- By deception
- By speed of execution

Secrecy and speed of execution are self-explanatory. It is with regard to deception that intelligence officers must be most careful. There is no fixed pattern for deception, and it will be different in almost every instance. Suffice it to say that German commanders take great pains to deceive their opponents in an effort to achieve the maximum surprise effect in conjunction with a later operation.

The German commander utilizes deception to a wide extent in neutralizing his enemy's combat power by diverting it to dummy or unimportant objectives.

The German objective in combat is to destroy the enemy's military force. Every action is directed toward that end. Victory is never a fact until the enemy is destroyed.

Information of the enemy is vital. Based on this intelligence, decisions are made, plans are formulated, and task forces are organized, equipped, and trained.

Consequently, the Germans place great stress on the functions of their military intelligence service and, in the field, on their reconnaissance agencies.

German reconnaissance units are very aggressive. They are trained to be aggressive in order to obtain specific information, and in order to deny information

to their opponents (preserve secrecy). These reconnaissance units are often reinforced, and will usually attack as soon as contact is established. If the opposition is too strong, they will utilize their mobility—withdraw and go around the position. They habitually report to the higher commanders, not only all details as to the enemy, but also as to the terrain or any special conditions they encounter.

German leaders of all grades are always well forward where they get the first-hand accounts of reconnaissance, where they can get the "feel" of the situation, and where they can issue timely orders to their subordinates for the rapid employment of their units. There is no need to have fast-striking combat commands unless their mobility and shock action are utilized.

As a result of intelligence and reconnaissance activities, the enemy's weaknesses are developed. Deceptive measures are invoked while overwhelming concentrations of combat power are made at vital points. At the right moment, the break-through is made, the encirclement is achieved and the annihilation is accomplished in the shortest possible time.

The description just made of German combat methods is the basis of all of their strategical and tactical doctrines. These doctrines are practiced in all echelons of command. They may be summarized as follows:

1. Obtain all possible information of the enemy, especially his detailed dispositions.
2. Select weak points where break-throughs may be accomplished and large enemy forces may be trapped.
3. Concentrate combat power opposite the weak points.

4. Hold the enemy in his position by containing his forces, or draw him out of position as desired by deceptive operations.
5. Break-through.
6. Encirclement.
7. Annihilation.

The German commander places great emphasis on the use of terrain. He studies it in great detail in order that he can use it to his advantage. Every effort is made to attack downhill, to employ obstacles to assist in the achievement of his objectives, to obtain the observation required for the effective employment of the supporting arms, and to develop the scheme of maneuver so that his opponent is placed at the maximum disadvantage from a terrain standpoint. Terrain appreciation is an important subject in every German military school.

The break-through is usually made by special assault troops. The point of break-through is thoroughly neutralized by large concentrations of artillery and air power. The initial break-through is normally only 1,000 yards to a mile wide but is immediately widened by attacks from the rear.

The encirclement is composed of two spearhead attacks advancing parallel to each other. The outer spearhead is composed of the more mobile elements. Each spearhead is preceded by an air-panzer-motorized infantry team to break the way. The direction of attack is usually a straight line even though the operation is termed an "encirclement." See diagram.

When one flank is an obstacle, as at Dunkirk, the encirclement operation is over one flank only.

The timing of the attacks depends entirely on the situation. In Holland and Belgium, the holding attack

was launched first to draw mobile elements into the trap. At Kiev, the holding attack was not launched until the encircling forces had reached their objectives.

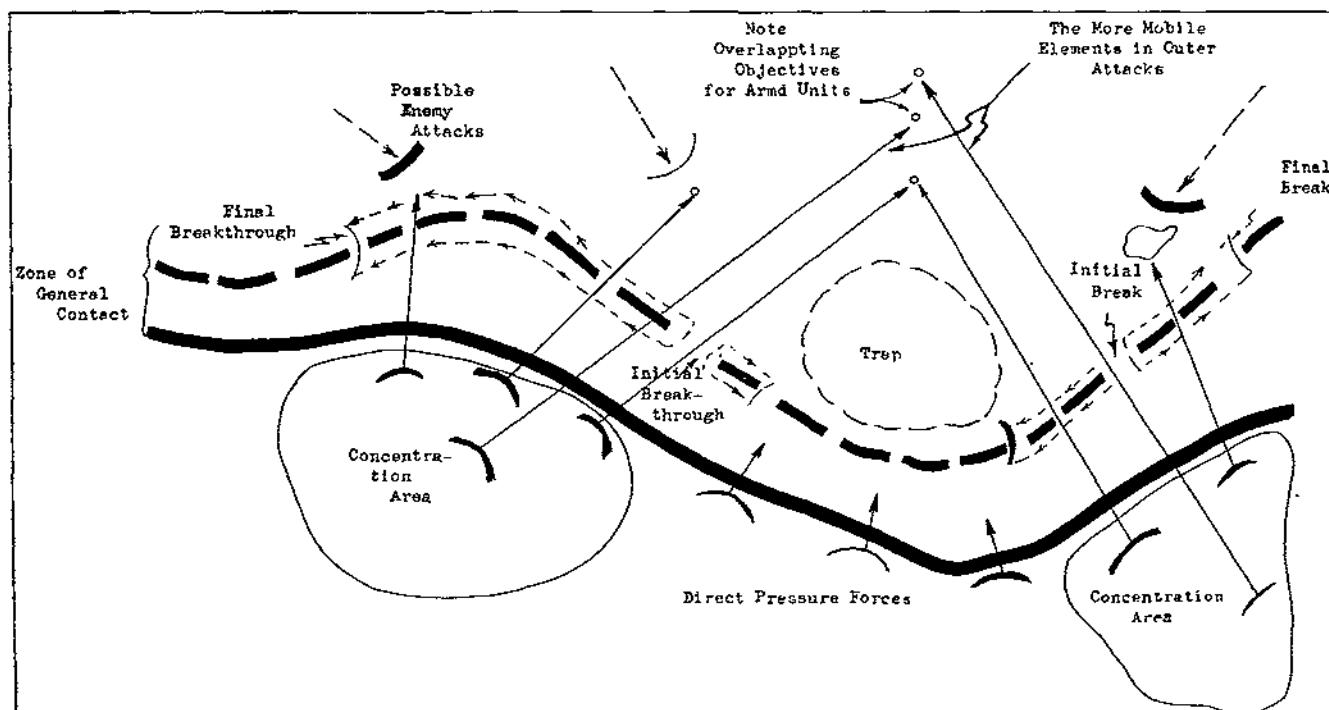
The principles outlined in the preceding explanation and diagram hold for all task-force organizations in a particular operation. Every unit has its objective, its mission. Their method—infiltate, surround, and destroy.

Our intelligence officers should be cautioned that if their unit is heavily engaged toward the front, they should be on the alert, because an attack is most certain to come from a flank or even in the rear. They should follow the operations of their own command, study the terrain and watch for traps.

The word "defense" has almost a lost meaning in the German military vocabulary. The German commander thinks only in terms of attack. Above all, the German recognizes that a well coördinated attack with modern weapons cannot be stopped by any line, no matter how well fortified it may be.

During the year 1941, the initiative was taken from the Germans for the first time in any campaign. When faced by superior odds they withdrew, and when their opponents overextended themselves they launched a counteroffensive. In other cases, German staff officers have explained that they allowed the enemy to advance into a trap before launching their attack. This was particularly noteworthy at Kharkov in May of this year. Note the diagram on page 49.

In the past, the Germans have had the advantage because of their tremendous superiority of combat power, that is, aviation, tanks, signal communications, and trained man power. The organization of their entire nation into one vast war machine has enabled them to

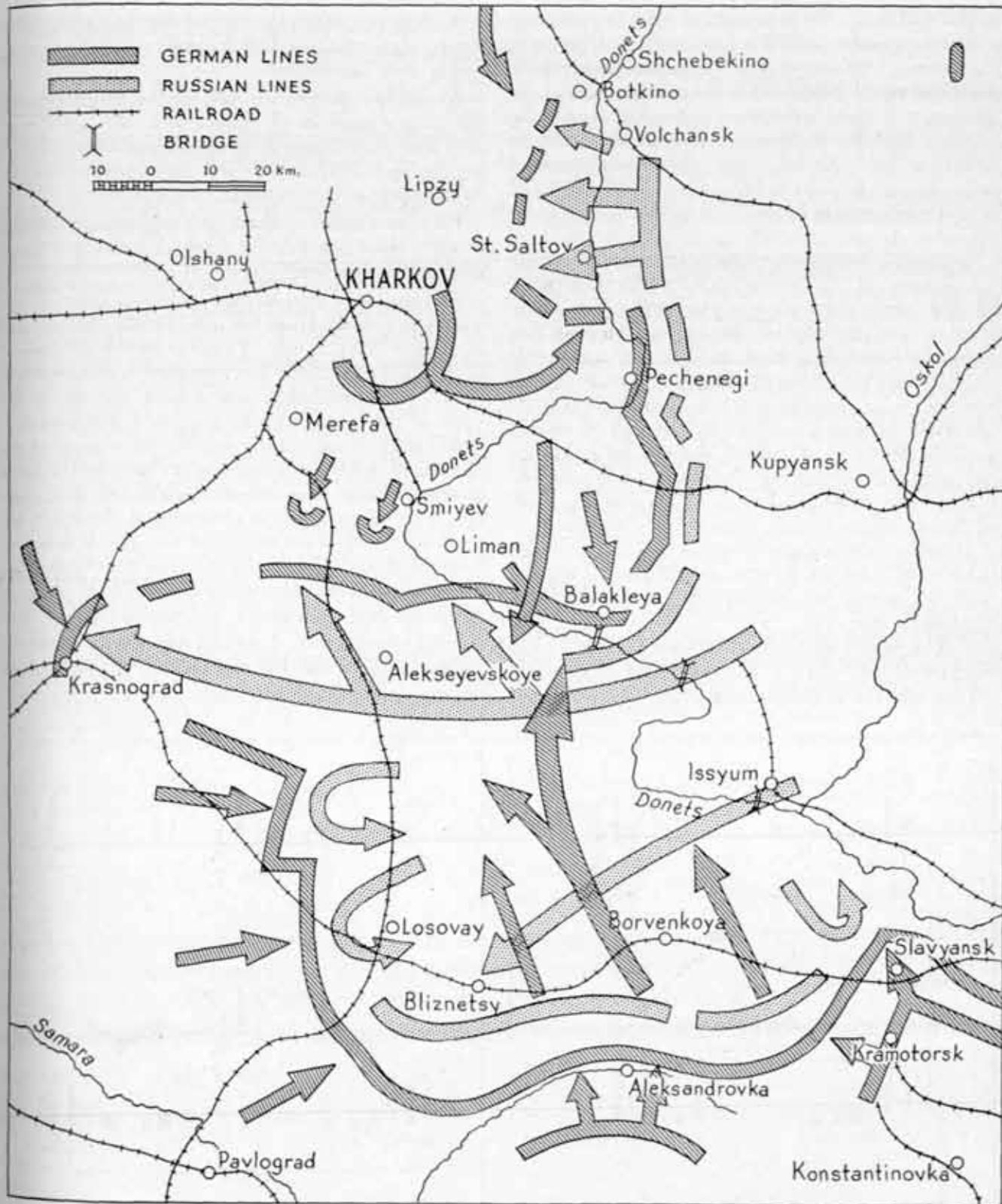


Schematic Diagram of a German attack

wage a total war against a group of uncoordinated, poorly prepared, nations.

Americans take to this type of war naturally. It is more like our game of football than any other comparison. It is every man for himself in the execution of the

task in a large team. In this game, the rules are few, and they may be changed at any moment. American forces require only the right tools, the training and the experience. They are getting the tools and the training, and they will soon acquire the experience.



OPERATIONS AROUND KHARKOV MAY 12-25, 1942

A Hole Filler

By Major K. C. Smith, Coast Artillery Corps

EDITOR'S NOTE: This is a type disposition, just as is the "square." Whatever type disposition is accepted as basic, the actual disposition in the emplacement of the guns must conform to the physical characteristics of the terrain. The liberal allowance for clearance that we have used during peacetime conditions seems capable of being reduced in order to bring fire to bear earlier and to continue longer in battle.

In the late 'twenties we happily discarded the parallax features of the Wind and Parallax Computor, M1920, "when the practice of placing the (data) computor at the gun position became standardized procedure." Then along came the M2 and subsequent directors with provisions for setting in parallax as well as wind. Also along came a fair quantity of AA BC Observation Instruments, M1 (BC Scopes). So we cast aside the Wind and Parallax Computor, as it had degenerated into nothing but a substitute for missing BC Scopes. We pulled the director off the directing point of the battery and set it somewhere out of the way.

However, we left the guns in the classic rough square, fifty yards on the side, as in Figure 1. Why?—Well, for several reasons. As nearly as we can track them down they were:

1. The danger space of a shell burst (Figure 3) was considered to be of such size that lethal areas would overlap with the guns fifty yards apart.

2. We felt that if we were closer than thirty-five yards to another element of the battery, one bomb hit might destroy two elements, and fifty yards spacing was even better.

3. Muzzle blast from one gun closer than thirty-five yards to another element of the battery might interfere with the efficiency of this other element, and fifty yards was even safer.

4. A square, fifty yards on the side was a nice convenient figure, and we had drawings and cuts all made up for such a formation.

In the late 'thirties we took all the dimensions off the danger space in all publications. We knew that they were far too large from information obtained during the Spanish Civil War, and the consensus seems to be that they were over four times too great.

Let's grant item two, above, as a valid reason, but stay down to thirty-five yards as ample distance, in a properly fortified position.

The matter of muzzle blast makes no sense to one who with quaking knees has stood on the director platform of a Navy 5-inch 38 caliber battery developing over 2600 foot seconds. On a series of normal courses, rounds were fired when this platform was within six yards of the muzzle of one gun, in a direction that would make an angle of less than forty-five degrees with the axis of the bore. There was no basis for the knee quaking. Those navy people regularly fire their guns over each others heads at elevations of thirty-five degrees, and drop to ten degrees if one gun is deflected from the other by fifteen degrees. The guns of the battery observed were only twenty-five feet from pintle to pintle and the barrels would crack together if they were pointed at each other. Now and then a man would get his hat knocked off, but the point is that the blasts did not interfere with the firing.

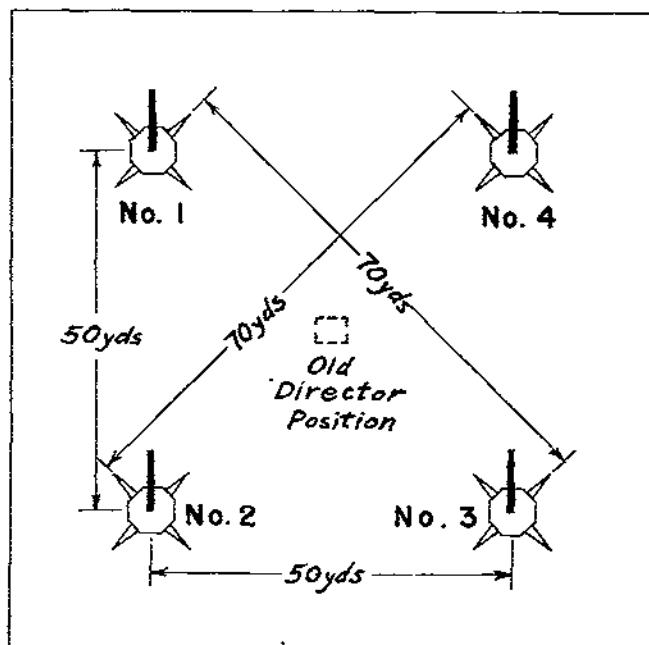


Figure 1

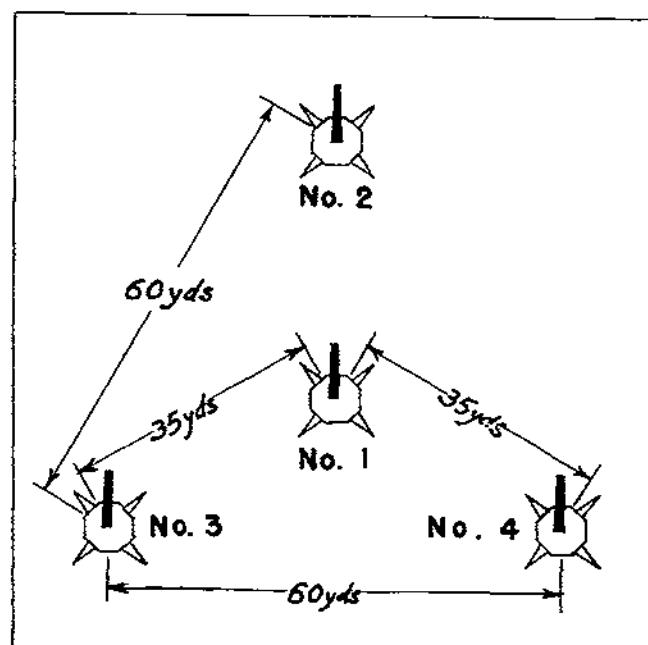


Figure 2

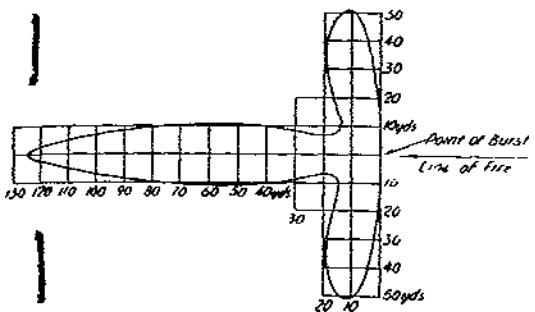


Figure 3

Naturally the fourth reason merits no consideration whatever.

Now everybody knows that we've been getting too much dispersion. Battery commanders have been known to converge their guns at about the midpoint of a target practice course to pick up more hits. Of course this makes a very sour divergence under service conditions if a target comes through at an azimuth different by 3200 mils from the azimuth at which we are converged.

The Navy beats the rap by having the director compute parallax separately for each gun. We have no such scheme standardized, but look what we can do! See Figure 2.

We set a gun down on the directing point of the battery. This becomes the base piece. We put the other three guns down radially about thirty-five yards away from the base piece about 120° apart. Now let's count our gains.

1. We set in director displacement from the base piece and leave it. If we get to shoot trial fire, we shoot

it with this gun and have corrections for the battery without manipulation.

2. We have a pattern that can be concealed more readily than even a rough square (or have we?).

3. If we have a secondary antimechanized mission, and embark on it, we can always shoot at least three guns without blasting another crew or two. In a square, sometimes only two guns will be able to fire.

4. Any discussion of reduced dispersion would get into dispersion ladders, twenty-five per cent rectangles, and even twelve and one-half per cent boxes or dispersion volumes of some sort to get the relative battery probable errors of the two layouts. We might presume that the average values of developed armament probable errors in our antiaircraft artillery gun batteries are proportional, in elevation, in deflection, and along the trajectory, to those given in the firing tables, within certain limits of accuracy. Anyhow, the witnessing of several dozen calibration problems and a comparable number of trial fire shots coupled with a small amount of shooting at sleeves indicates that our guns consistently shoot within * * * mils of the place where we think we are pointing them. If by some chance everything works out right using a square formation, we are consequently missing the target by about * * * mils at mid range, and shooting all around it. *We've left a great big hole right in the center of the pattern of bursts!* By putting one gun in the middle we can pretty well fill up this hole with a lot of concussion and fast moving fragments.

If we pull the three guns in radially so that they are twenty or twenty-five yards from the center, we will fill the hole for sure. We should also get some sort of center of burst in the sky that will show us how we're doing.



"Please cancel my husband's subscription to the JOURNAL. He has gone on active service and won't need it any longer."

"My son has gone on foreign service, so please cancel his subscription."

Believe it or not, these are actual quotations from letters received at the JOURNAL office. Perhaps the reason you may not be receiving your JOURNAL is outlined in these quotations. Remember, the JOURNAL can reach you at any place that is served by a United States Post Office, or an Army Post Office.

PROPERTY OF U.S.



The *Octopus*.



Fore deck of *Octopus*, showing deck plates, steel buffer plates, davits, and power unit.

The Octopus

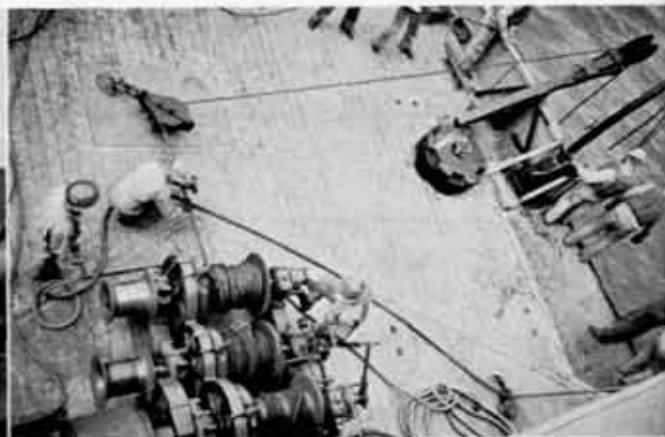
By Lieutenant Paul E. Pigue, Coast Artillery Corps, and
Sergeant Theodore J. Fisher

From ferry boat to mine planter might be the Horatio Alger title of an act of ingenuity that has resulted in one Harbor Defense having one of the most efficient mine projects in the harbor defenses of the United States.

The *Tourist No. II*, formerly a motor-car ferry, was quickly converted to a mine planter after the surprise attack on Pearl Harbor. When word of the Jap's treachery was received, the *Tourist No. II* changed managers, and alterations were started to conform her to the Army job for which she was slated. She had been one of the usual run of single-ender, single-screw, car ferries, ninety-eight feet long with thirty-six feet of beam, entirely constructed of wood, and a draft of seven feet. The *Tourist No. II* is equipped with an old Fairbanks-Morse 250-horse-power engine, which is now equipped with a supercharger. Sections of bulwark were ripped out flush with the deck and mine and anchor

davits set in. Frame-like steel supports of type "A" were built and installed as lateral supports. A set of logging drums was rented for power equipment to pick up cable and mine matériel, and to drive the king reel. Temporary bulwarks were built fore and aft of the ship. The bow bulwark has a removable midsection giving access to an old sheave which was, after considerable welding and bracing, put on as bow sheave. Additionally, cat-head footings and supports were set up ahead of the davits, cable hangers were fastened to the stanchions of the ferry, straps were made from raising ropes, and were adjusted so as to place a snatch block in the proper position to bend cable through it to a nigger-head (straps being fastened to deck kevles), and lastly, a false deck was put on to protect the ship's wood.

The *Octopus*—as the men call the ship—is well suited for river and inside mine work. The great amount of deck space and low bow make her easy to work from,



and her ability to turn in a short distance enables her to plant mines in fast time. For outside work it was necessary for deck plates to be added, then heavier anchor davits, then a bow davit with snatch block. But as time passed, and the mine-planting section adapted itself to this emergency equipment, planting operations became smooth and efficient. The ship's first shore cable was put down on December 20, 1941, only thirteen days after Pearl Harbor, and she has been in constant operation since that date.

Additional improvements having been made, the *Tourist No. II* is today an efficient mine planter. A new winch has been installed, the false decking has been removed to prevent rotting of the wooden deck below, five deck plates have been installed to eliminate straps except for safety measures, steel plates have been put

on the deck wherever there is rough usage due to banging snatch blocks, a steel flooring has been put between the davits, and a low safety rail has been welded to this flooring. Steel decking has been placed under the king reel. Having overcome her deficiencies to a great degree, the *Octopus* seems to be ideally suited to its particular project, for now she has the power and the equipment to put down and pick up mines without undue danger to man or matériel, and has enough deck space to allow the full planting crew to work without getting in each other's way, and to carry full group equipment without difficulty. The proof of this efficiency was shown in the recent target practice in which the mine battery made 100 points out of a possible 100, and the mine planter earned the right to wear the "E" of efficiency and excellence on her stack.



Gun Displacement Using Mils in Azimuth

By Captain John Slavin, Coast Artillery Corps

EDITORS NOTE: The method outlined is an alternate procedure to the one described on Page 34 of the September-October, 1942, issue.

Would you like to use the displacement corrector of your Deflection Board M1 when operating in mils? Batteries using mil sights may be situated where this convenient device can be used to furnish azimuths, corrected for displacement, to a displaced gun or to a displaced platoon.

But the displacement corrector of the M1 Board is designed only for operation in degrees. The mechanism and scales are arranged to move the parallax arm through an angle equal to *nine times* the actual parallax, because the degree azimuth scale upon which its index moves is enlarged nine times. (FM 4-15, par. 107 g.) When the board is set up for operation in mils, the azimuth scale is enlarged only *eight times*, due to a change in scales and gearing. Thus, if the displacement corrector is operated as usual, the corrections which it

applies for parallax are too large, being nine-eighths of the proper values.

If we can find a simple and fool-proof means to reduce this motion to eight-ninths of its former movement, we can use the displacement corrector for mil operation. Such a change must be easy to make and remember, and must not change in any way the routine operation of the board in tracking.

For all practical purposes, the parallax due to displacement is proportional to the actual displacement in yards. Therefore, to reduce the movement of the parallax arm to eight-ninths of its normal movement, we will assume a value for the displacement which is eight-ninths of the actual value in yards.

This fictitious or modified displacement is used in positioning the curve disk when the board is adjusted for operation. All other settings and operations are unchanged, and the board will furnish corrected azimuths, *in mils*, for the displaced gun or platoon, as well as for the directing point.

Antiaircraft Spotting Apparatus

By Captain Donald L. Lewis, Coast Artillery Corps

The importance of accurate records in making an analysis of target practice for an antiaircraft-gun battery is obvious. To determine the effectiveness of gunnery, the methods used to adjust fire, the performance of matériel, and the state of training of the personnel, records must be accurate.

During the target-practice season of 1940, held at Fort Barry, California, it was found difficult to gather accurate data by use of the accepted system of visual observation, because of personnel errors, certain faults of the methods in use, and the rapidly changing weather conditions.¹

The data required for analysis includes time, azimuth, and angular-height data from two stations located at the ends of a measured base line. Ordinarily the recording theodolites obtain this information by photographing the target and the azimuth, angular height and a time interval that advances one number each second. The target and bursts may not appear on the film, but the rest of the data is dependable.

In order to supplement the cameras a visual section is organized. This section observes and records data from three BC scopes; two located at the battery, one for lateral spots and one for vertical spots. Angular height and azimuth are also recorded from these telescopes, and one telescope located at the base-end station, from

¹Personnel errors cannot be entirely eliminated by the substitution of automatic operations. Because of inherent inaccuracies in making and reading the penciled impressions, some degree of original personnel error will remain.

which range deviations, azimuth, and angular height are recorded. The visual section is tied together by the use of a stop watch and voice signals. This, and the inability of the azimuth readers to read correctly on a rapidly moving target cause a time lag of at least one-half second which allows an error of twenty-five yards for a target traveling one hundred miles per hour, plus an average ten-mil error in azimuth for a target at 6,000 yards slant range. This amounts to an error of sixty yards.² These errors are either cumulative or compensating, thus the computed altitude will vary from one hundred to two hundred yards from the true altitude. This error is too large for analysis within reasonable limits, and the final result is of limited value.

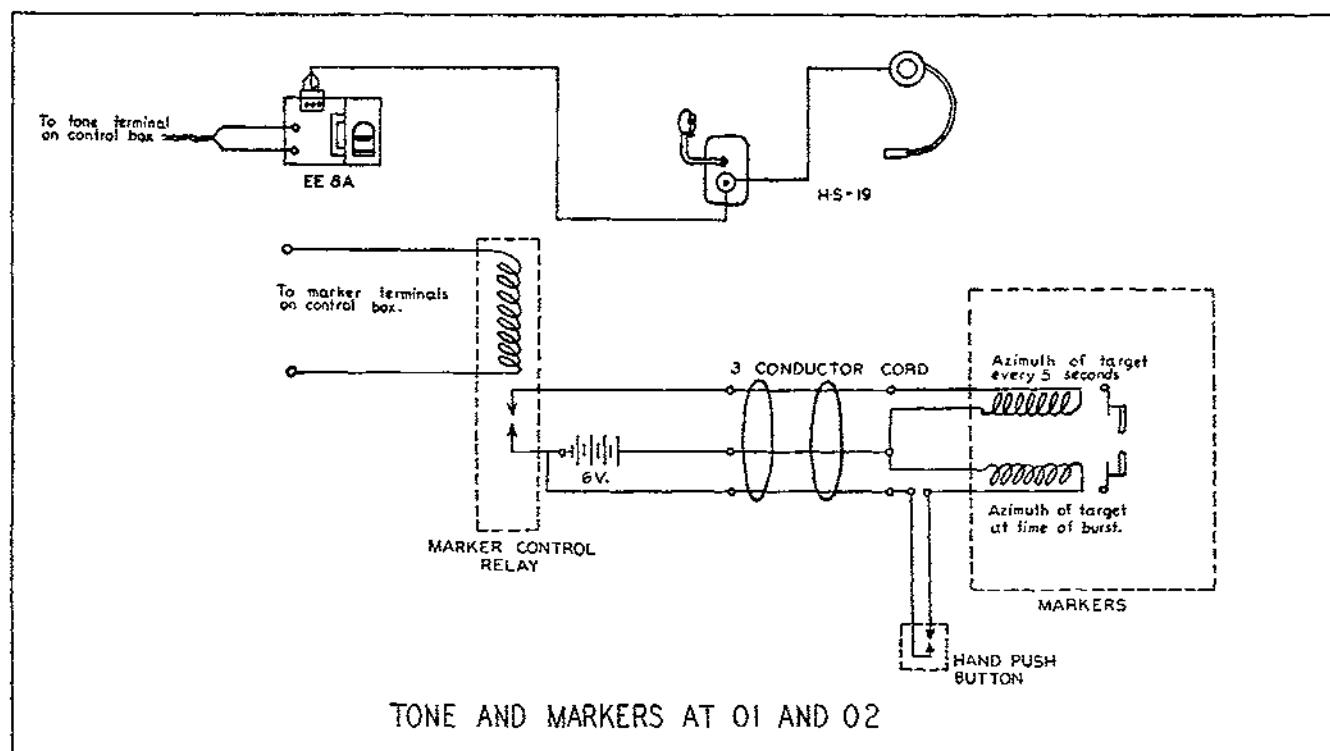
It was evident that some improved method to supplement the recording theodolites was necessary. Some means must be found to facilitate the recording of azimuth data from a rapidly traversing BC scope.

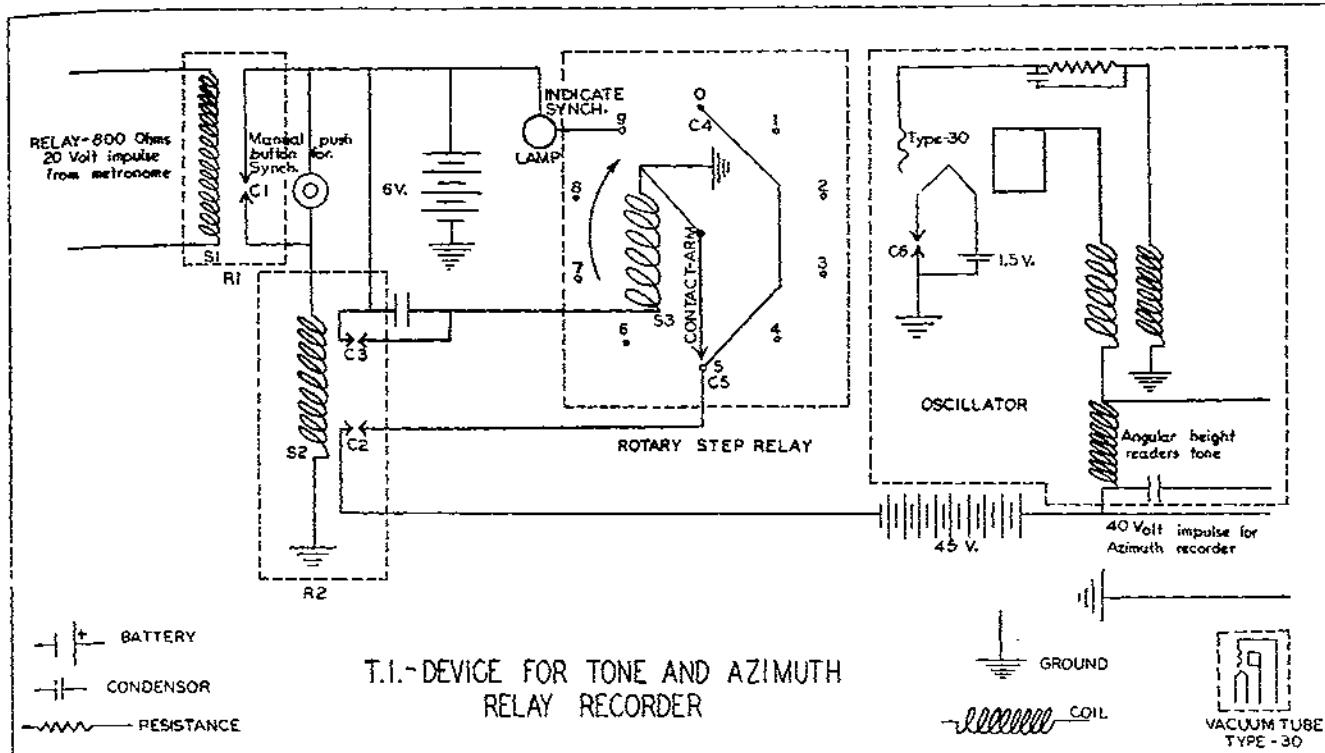
Two members of a participating regiment went to work on the problem, and after many trials and errors the herein-described device was evolved.

This device provides a method by which visual observation may be accurately paired with camera data to give a true picture of the actual results of the practice.

The one-second impulse created by the camera metronome to advance the counters is employed to synchronize the visual section with the camera section. A rotary

²Unless the target is at zero angular height, one must use horizontal range with azimuth errors or use lateral errors in the slant plane with slant range in order to obtain the lateral deviation.





switch is synchronized with the camera by a synchronizing button (see diagram). The metronome is started which simultaneously advances the camera counters and the rotary switch. At five-second intervals contact is made with points impressing a tone on the angular-height reader's phone and energizing the target azimuth relay markers, recording the data on the recording paper.

The marking relays are attached to the BC scope as follows: A piece of ten-gauge aluminum, three by four inches, is slipped under the reticle light control rheostat and held in place by the two studs. An aluminum box three inches wide, five inches long, and three inches deep, is attached to the outer end of the plate by a hinge to permit raising the box when getting on target. This box contains two fast-closing relays which operate recording pencils, one for azimuth of target and the other for marking azimuth of target at time of burst.

To provide a plane surface to hold the recording paper, an aluminum disc, twenty-four inches in diameter, with a hole in the center is fitted over the BC scope tripod head, and held down by screwing on the instrument mount. Paper strips cut to fit the disc are held on the upper surface by clips. The recording pencils are allowed to rest on this paper.

Push buttons operated by the azimuth observers record the azimuth of the target at each burst, therefore, by interpolation, the time for burst may be obtained.

Each azimuth instrument is equipped in the same manner. However only one control box is necessary.

The ninety-volt one-second impulse from the camera metronome causes Coil S-1 (see diagram) to energize closing contact C-1. Contact C-1 is in series with a

six-volt battery and relay R2. When contact C-1 is closed it completes a circuit from ground to ground through Coil S-2 and C-3. Contact C-3 is in series with a rotary-step relay and the six-volt battery, therefore when contact C-3 is closed Coil S-3 is energized. Coil S-3 is of the solenoid-plunger type, and when energized pulls in a ratchet, which energizes a ten-tooth gear, causing it to rotate one tooth. Fastened to this gear is a contact in a contact arm which is grounded.

A series of ten-contact points are located on a fiber disc so as to be contacted by the contact arm. Zero (C-4) and 5 (C-5) are wired together and in series with contact C-2, a forty-five-volt battery, oscillator (type-30 vacuum tube), and a marking relay control relay.

As the contact arm advances one tooth per second it makes contact with either contact C-4 or contact C-5 every five seconds. This closes a ground to ground circuit through the oscillator and marking relay control. A forty-five-volt impulse is then impressed across the oscillator and marking relay control, causing the marking relay to mark and a tone to be heard by the angular-height readers.

After the course is completed, reference marks are made on the recording paper so that the true azimuth for each five seconds can be determined at any convenient time by traversing the instrument and recording the azimuth of each mark.

The beauty of the whole thing is that it works. This device has been used by one regiment since 1940, and by units at Camp Haan since 1941.

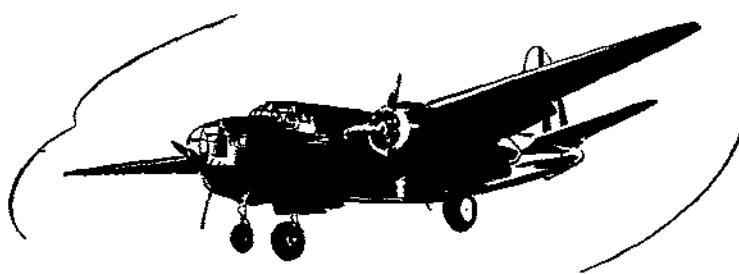
The weight of the apparatus is less than twenty-five pounds, and is placed in a box twenty-four by twenty-four by twelve inches. The material used in the con-

struction, such as relays, came from junked pin-ball machines. The sensitive relays were salvaged line supervision relays.

A working diagram of the component parts is shown herewith.

MATERIALS USED

Amount	Description
1	Rotary Step Relay 40 step-6 VDC
3	Relays SPST Type 1016
4	Relays marking No. contacts, type 1000
1	Relay, DPST Normally open 6VDC Type 1254
1	Oscillator—1000 cycles Battery powered 6VDC
1	Push button switch, non- locking, standard No. 20
14	Binding post No. 147
1	Dial Light, bracket and socket No. C340C
4	3 point plug, Jones plug P303.CCT
4	3 point socket S-303-FP
3	Bv-pass condenser .25 MF
	Dry Electrolytic Tubular condenser 58VDC TP 440
20 Ft.	Three conductor cord No. 8423
20 Ft.	Two Conductor Cord rubber covered
2	Two point plug No. P302FHT
2	Two point socket, S-302-FP
25 Ft.	Waxed hook up wire, No. 18
	stranded tinned copper No. 1041
1 gross	Screws, wood No. 6, 1½"
12 ea.	Screws, machine, brass
	No. 6-32x¼ in.
	No. 6-32x½ in.
	No. 6-32x1 in.
2	3 in. Hinges, brass
16 sq. ft.	¾ in. 5 ply plywood
1 piece	Sheet aluminum, 2'x9"x⅛"
1 piece	Sheet aluminum, 2'x4', ¾" or 3/16" substitute—plywood, ½"-3 ply
36	Nuts, hexagon No. 6-32x¼ in.
2	Hand push button switches non locking.



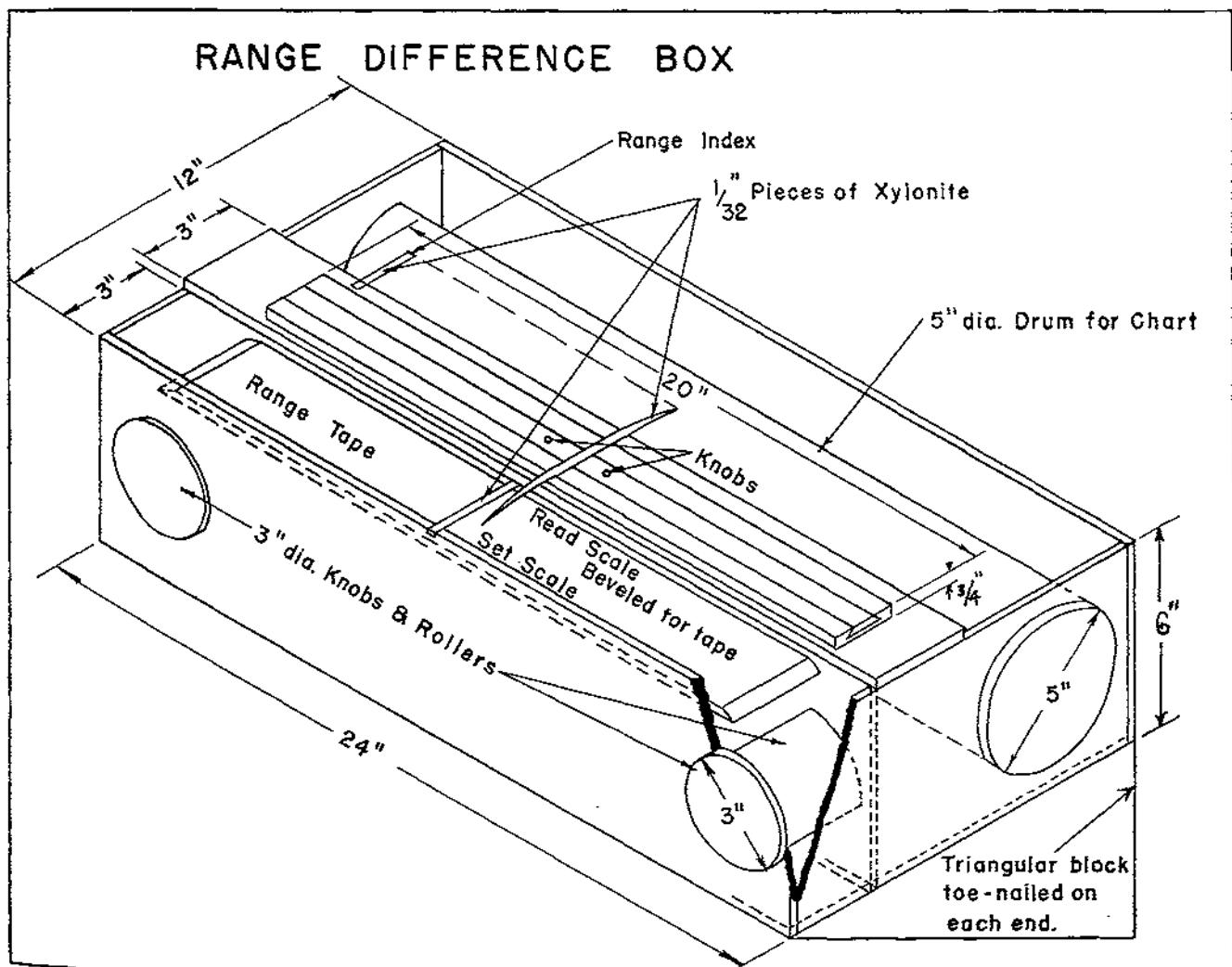
Relocation Without a Plotting Board

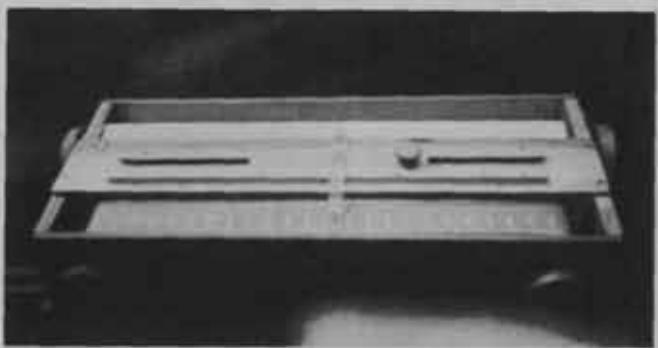
By Major F. G. Tandy, Coast Artillery Corps

Those Coast Artillerymen who have served much along the East coast of our United States have a mental picture of a flat coast without a hill for miles. However, the West coast is very precipitous, having in many cases high bluffs rising immediately from the beach. Often there are hills rising from several hundred to several thousand feet within a few thousand yards of the coast line. This condition makes a perfect setup for the use of a Depression Position Finder as a part of the range finding system. However, in using a D.P.F. we have encountered the problem that the position of the

guns often is of necessity one thousand yards or more distant from any position where there is sufficient height of site to give accurate ranges with the D.P.F. This presents a problem in relocation without the use of a plotting board, and for this great a difference, the range difference chart is not very satisfactory.

In order to solve this problem, many ideas have been presented and tried out and as a result an instrument we call a Range Difference Box has, like Topsy, grown up. It is accurate, rapid, and simple. We have no difficulty in furnishing ranges to the guns every ten seconds and





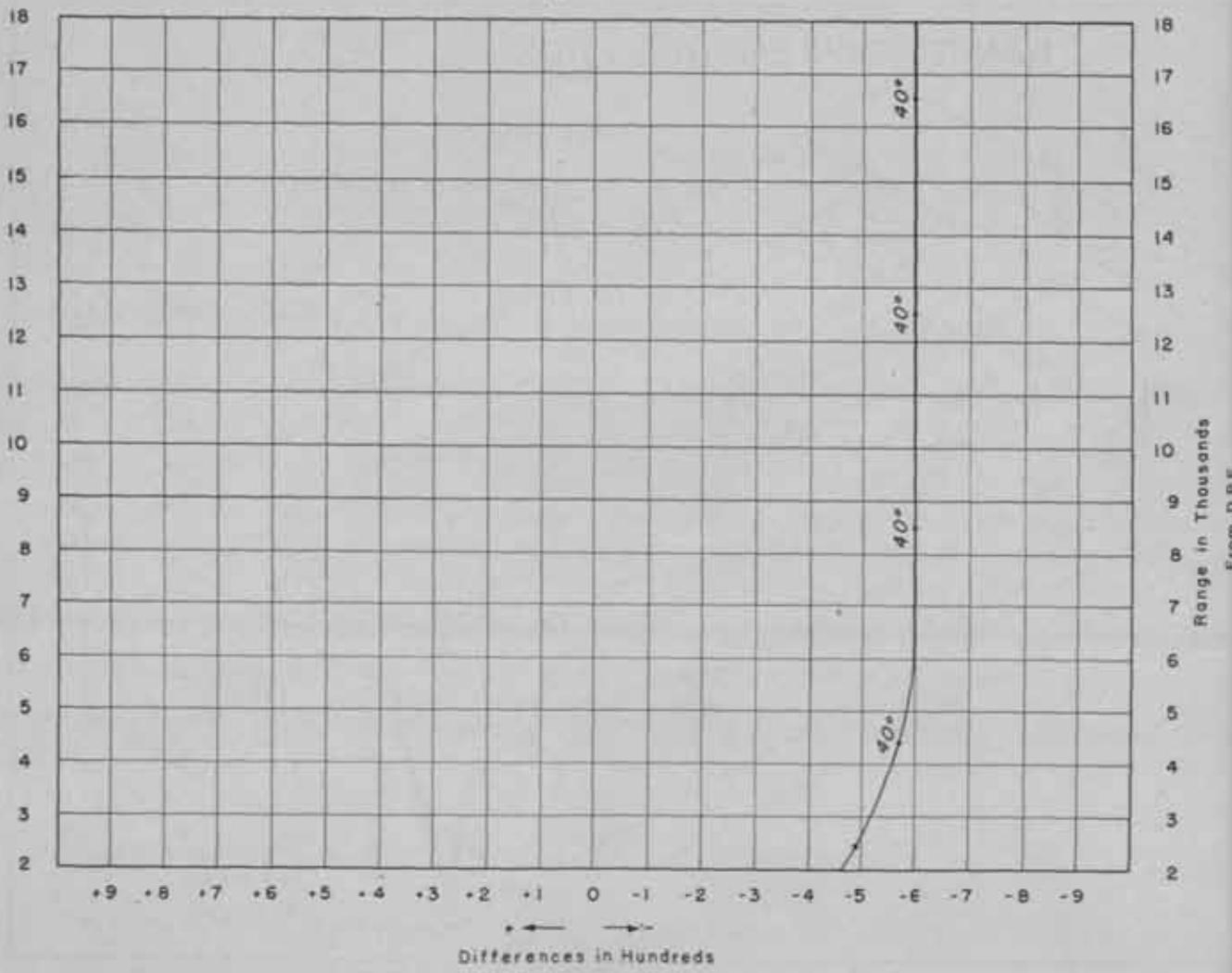
could get them out faster if necessary. There is very little chance for error.

This device is a box twenty-four inches by six inches by twelve inches. It has a tape across the bottom two and a half inches wide, upon which ranges are laid off to a uniform scale from minimum range to maximum range. This tape is carried on rollers on either side. A line is provided at the center of the box for setting off ranges to the target as read from the D.P.F. Above the tape is a chart wrapped around a roller five inches in diameter. Upon this chart, various tangents from D.P.F. to target,

from minimum to maximum range of guns, are laid off vertically as ordinates to a convenient scale; and range differences from D.P.F. to guns for each five degrees of azimuth from D.P.F. are calculated and laid off horizontally using the scale of the lower range tape. These are laid off either right or left of the center of the box, depending on whether they are minus or plus. These points plotted are then joined by curves which are labeled in azimuth to target from D.P.F. A lateral slide is provided between the chart and the range tape with a double pointer, one end of which is on the chart and the other on the range scale. This pointer and slide mechanically adds or subtracts the range difference. (See drawing for construction details of box.)

OPERATION: One man operates the device moving the range tape so that the range read from the D.P.F. is at the center of the box under the set scale. He also rotates the drum to set the same range opposite the index and the upper end of the double pointer. The pointer is then slid sideways until it is over the azimuth as given from the D.P.F. The corrected range to the guns will then be read under the lower end of the double pointer on the range tape.

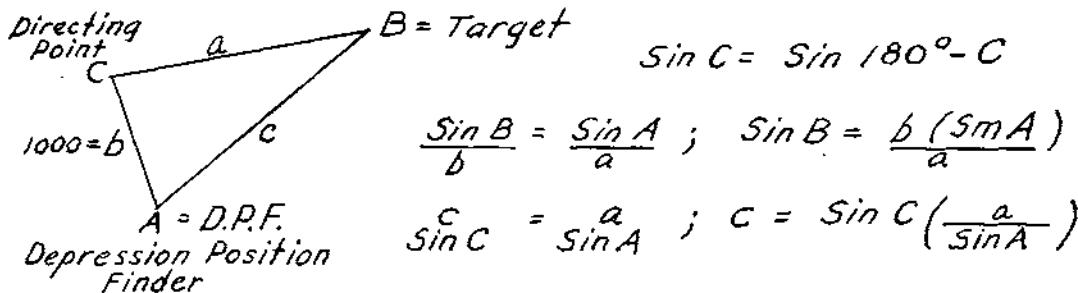
Chart for Range Drum



Notes on construction of chart: The problem presented in the construction of the chart involves solution of an oblique triangle. In the truest sense, the triangle has two sides and the included angle given, that is, (1) distance from D.P.F. to the gun, (2) range from D.P.F. to target, and (3) the included angle which is secured by having azimuth of each of these sides given. However, since the calculations are for use in the construction of a chart, it will simplify the problem to assume ranges from the gun to the target using every 2,000 yards from minimum to maximum range and solve using every five degrees of azimuth from D.P.F. to

target throughout the field of fire. By doing this the law of sines can be used. Calculations made on a slide rule are sufficiently accurate in most cases. When calculations are completed the ranges from D.P.F. to target are plotted as ordinates using any convenient scale (1,000 yards equals one inch is suggested) and the range difference for each case is plotted laterally as abscissa, using the same scale as the range tape. (100 yards equals one inch is suggested.) The points thus obtained for each five degrees of azimuth are joined by a smooth curve and labeled with that azimuth. When curves represent more than one azimuth, they should be so labelled.

CHART FOR RANGE DIFFERENCE BOX



Use Scales A & S on Slide Rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Example For Az. From DPF = 40°, b Az. = 350°, & b = 1000 yds.

a = Range From Directing Point	Angle A From Given Azimuth	Angle B From Sin B = b(Sin A)	Angle C From 180° - (A+B) Or Use (A+B)=C	C From C = Sin C (a / Sin A)	Algebraic Difference Between c & a
2000	50°	22° 30'	72° 30'	2,490	- 490
4000	50°	11° 03'	61° 03'	4,570	- 570
6000	50°	7° 20'	57° 20'	6,600	- 600
8000	50°	5° 30'	55° 30'	8,600	- 600
10000	50°	4° 24'	54° 24'	10,600	- 600
12000	50°	3° 40'	53° 40'	12,600	- 600
14000	50°	3° 9'	53° 9'	14,600	- 600
16000	50°	2° 45'	52° 45'	16,600	- 600
18000	50°	2° 26'	52° 26'	18,600	- 600



By casting up our own accounts, we find the truth. Our armed forces have proved their bravery, their stamina, their ability to fight. They proved it at Bataan and Corregidor. They are proving it today in the Solomons. We know that this nation is growing stronger daily in military power, in unity and, equally important, in our desire for victory.—HON. ROBERT P. PATTERSON.

ROTC Medal Winners

Each year the United States Coast Artillery Association gives a medal to the outstanding student in each Coast Artillery senior ROTC unit. The medal is awarded by the Association on the recommendation of a board of three members appointed by the P.M.S.&T. of the institution concerned.

The selection is made on a grading scale of one hundred points. Grades in academic subjects exclusive of military subjects carry a weight of thirty points; grades in military subjects, both theoretical and practical, rate forty points; personal qualifications, including character, initiative, force, leadership, coöperation, loyalty, industry, military bearing and neatness, count thirty points.

The award is made to a student who has completed his junior year, and is based on three years of military and academic work.

Awards for the academic year 1941-42 were made as follows:

University of Alabama: Cadet Second Lieutenant John W. McConnell, Jr., of Bessemer, Alabama.

University of California: Cadet Sergeant Bernard Etcheverry, Jr.

University of California at Los Angeles: Cadet Roy L. Baber, of Brentwood Heights, California.

University of Cincinnati: Cadet Major Robert C. Geiger.

The Citadel: Cadet H. L. Beckington.

University of Delaware: Cadet Sergeant Clarence S. Reburn, of Wilmington, Delaware.

Fordham University: Cadet Joseph Vincent Fiore, Bronx, New York.

Georgia School of Technology: Cadet Major Arthur Chester Skinner, Jr., of Jacksonville, Florida.

University of Illinois: Cadet Lieutenant Colonel Thomas H. Cloke, Jr., of Park Ridge, Illinois.

University of Kansas: Cadet First Lieutenant George Lee Johnson, of Lawrence, Kansas.

Kansas State College: Cadet Leon D. Findley, of Kiowa, Kansas.

University of Maine: Cadet Second Lieutenant Francis Almon Brown, of Woodland, Maine.

Massachusetts Institute of Technology: Cadet Kenneth Robert Wadleigh, of Clifton, New Jersey.

Michigan State College: Cadet Lieutenant Alfred M. Cordes, of Grand Haven, Michigan.

University of Minnesota: Cadet Master Sergeant Robert S. Stewart.

Mississippi State College: Cadet Colonel James Woodford Carr, Jr., of Columbus, Mississippi.

University of New Hampshire: Cadet Richard James Foley, of Manchester, New Hampshire.

University of Pittsburgh: Cadet Colonel George L. Illig, Jr., of Crafton, Pennsylvania.

University of San Francisco: Cadet Captain William T. Wall, of San Francisco, California.

Agricultural and Mechanical College of Texas: Cadet First Sergeant Spencer Roe Baen.

Utah State Agricultural College: Cadet Regimental Sergeant Major Aaron G. Amacher.

Virginia Polytechnic Institute: Cadet John Randolph Wilson, of Gate City, Virginia.

Washington University: Cadet Sergeant Leland Morris Wallace.

University of Washington: Cadet Master Sergeant Donald R. Huey.



Cross Country Driving

By Richard Gordon McCloskey

EDITOR'S NOTE: This article is a portion of Chapter 2 of *Keep 'Em Rolling*, the JOURNAL's new handbook for army vehicle drivers. The author founded *Army Motors*, and was its editor for two years. Other chapter titles include *Winter Driving*, *Towing Big Stuff*, *Blackout Driving*, *Motor Marches*, and *Camouflage*. There are fourteen chapters in all. Further information on *Keep 'Em Rolling* may be found on the inside front cover.

Some day—even if you've read this book—you're going to get stuck. If it's in a crap game, we can't do you any good; but if it's during a cross country run, come on and read. Maybe we can tell you how to lick that kind of driving.

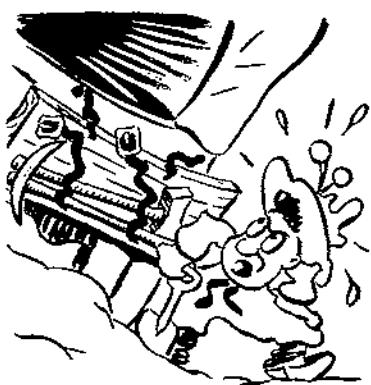
Cross country driving is the thing you do least of in peace time and most of in war. Nine times out of ten you've had little cross country driving when you're suddenly called on to do plenty of it.

Practically anyone can drive a truck on the highway. And you can do a lot of fool things on the highway, but not many of them will seriously damage you or the truck or delay you very much. But cross country driving needs every bit of brains and guts you have—and good cross country drivers are scarcer than beer in barracks.

By way of being cheerful, remember that you can't always get out of trouble by backing away from it—the pick and shovel and jack aren't hung on a truck for looks.

DITCHES AND SHELLHOLES

What a truck can do in the country depends on its condition. Remember that the transmission, the axles, and the crankcase hang below the running board. Keep out of ruts that look deeper than any of these assemblies.



The pioneer tools aren't for looks.

A stump can't get out of the way but you can. If you can't get around it, drive over it carefully. That may be hard, but it's always better than ruining a front axle. It's

easy to belly up on a slope if you don't remember those low-hanging assemblies. Take a slope at an angle or you may be left with your front wheels hanging in the air and your crankcase buried in the ground.

Take deep wide ditches, shell holes, and craters at an angle, too. If the nose of the truck hits the ground before the front wheels, or if the tail hangs on a ledge before the rear wheels can get traction, there's not much you can do about it except dig out. Drive slowly and carefully over deep, wide holes and ditches, or you'll twist the truck frame into a corkscrew.

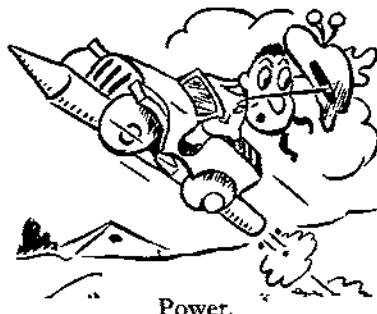
Some experts recommend going through ditches head-on. Ease down into the ditch, holding the steering wheel tightly to prevent the front wheels turning against the ditch and damaging the steering mechanism. Take it in low gear and climb out still holding tightly to the wheel.

Try both systems, the slantwise and the straight-ahead, and use the one you like best. Mix 'em on different kinds of ditches.

Before getting down to the meat of cross country driving, you'll have to go through a couple of sticky but necessary paragraphs on the things that control and affect driving. If you know these, it will save you many a long wait and much pioneer tool work. If you know why your truck hasn't enough traction to get up a muddy hill, you're not going to try it and risk landing in a ditch. If you didn't know what traction was, you'd probably run hog-wild up the hill and into trouble.

FOUR ESSENTIALS

So let's begin by finding out what four things, besides an expert jockey, a truck needs to get across country: *power, momentum, traction, and flotation* are the



Power.

babies. Without going into a scientific mumbo-jumbo, here's what they mean and what they can do for you.

Power is the "guts" of an engine. If an engine isn't operating fast enough it hasn't got power. Without power, you just don't go. Shifting into lower gear cuts the speed of the truck but it speeds up the *engine* and gives you power—and since it's power that pulls you

through, always shift in plenty of time when running into trouble, and shift fast.

Momentum is what makes a truck coast: it is what keeps it going after you've taken your foot off the accelerator. The faster you go, the more momentum you



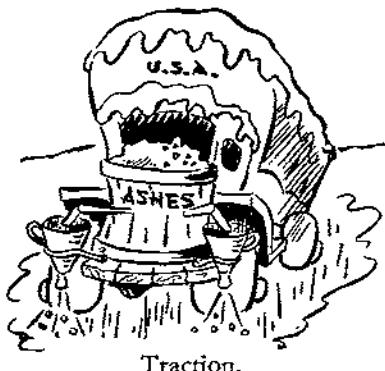
Momentum.

have. When you have a hill to make or a bad patch of cross country going, get plenty of momentum by increasing your speed to help the engine carry you up or pull you through.

Traction is the push of the wheels against the ground. As soon as they start slipping, you've lost traction. Chains, mud and snow tires, gravel and ashes on snow—they all give you traction. Once you lose it, you're stuck!

Flotation means float. As long as your tires are on top of the ground you'll have flotation because you're floating. When the tires sink into mud, sand, or snow, you're not floating on top and trouble begins.

About the two worst things in cross country driving are loss of traction and loss of power. When the driving wheels begin to spin it means the driving power is



Traction.

greater than their grip on the ground. When the grip of the wheels on the ground is greater than the power driving them, the engine stalls. So you see, power and traction are as closely related as beer and burps.

GEAR SHIFTING—THE CURE-ALL

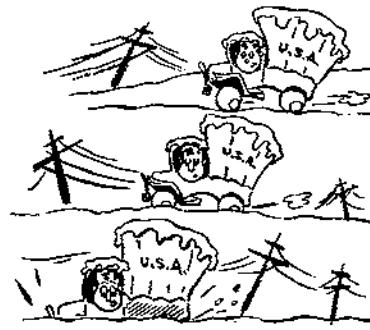
The one cure-all for most cross country driving troubles is expert gear shifting, and this includes using the transfer case when you need it. "Shift soon and shift often" is the password to expert driving. Shifting in time will prevent the engine "lugging" and eventually

stalling. Shifting often balances the amount of power needed by the wheels with the type of traction the wheels can get on the ground.

Let's take loss of traction first and see what we can do about licking it.

LICKING LOST TRACTION

You can tell generally by the look of the ground when the going will be bad, so you have plenty of time to get ready. Always have the front-wheel drive engaged for cross country driving to get all the traction the truck



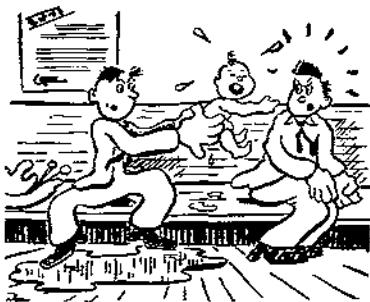
Flotation.

can give. Put the transfer case into high range for level cross country and into low range for very bad going and hilly country.

Remember that too much power will make the wheels spin on anything except hard, baked ground, so do everything you can to keep the accelerator steady. Suddenly accelerating shoots power in bursts to the driving wheels, which is just what they need to start spinning.

Spot the path you're going to take, shift into the highest gear that will take you through and, once you've started, keep moving all the time. When the engine feels as though she'll stall, shift in plenty of time while the truck is still rolling, and ease the clutch in. Accelerate slowly so the driving wheels don't start spinning. Never let the truck stop if you can help it.

As soon as the wheels start spinning, throw out the clutch so you don't dig the wheels in and have to dig yourself out. Stop the engine and get out and see how



Shift soon . . . and often.

the land lies. A little work with the shovel in front of the driving wheels may open a path for you to get out. Rocking her, as you will read on page 77 in the chapter on "Winter Driving," may be the cure.

OVERLOAD

Your load is probably too heavy when the wheels are sunk into the ground even though it isn't so soft that it's soupy. If passengers are aboard, turn 'em out and have 'em push. Take some of the cargo out if necessary.

UNDERLOAD

If the wheels spin over wet grass or snow or soft ground, you probably haven't enough load on the truck to give the wheels traction; either that or you need chains. Try putting an extra load over the axle of the slipping wheels first; it sometimes helps. If passengers are aboard, sit 'em on the hood or the fenders if the front wheels are slipping, or over the tailgate if the rear ones are slipping. Rocks can be piled into the body of the truck, or dry earth or sand sprinkled in front of the driving wheels.

Increasing or decreasing the load helps on any kind of truck except non-towing 4x4's. These are usually built with enough traction to take all the power the engine can give.

GETTING OUT

If she still won't move get the farmer's daughter to help you swipe some of her old man's corn shocks and heave them into the path of the truck. Hay, logs, plants, loose brush, rocks, chicken wire, sacks, and in a pinch,



The farmer's daughter may help.

the tarpaulin will do the trick—but don't say we told you to use the tarpaulin! Anything that will increase wheel traction is fine.

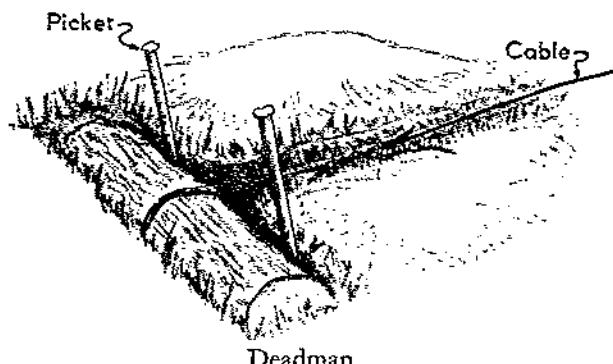
Chains are a big help in muddy going, so try them next.

Still stuck? Hitch your winch line to an anchor ahead of the truck. (You'll find winching dope on pages 41-46.) A tree will do if it's handy, or a rock, or a stake that's been anchored as the picture shows, or driven into the ground behind a rock that will hold it. As a last resort make a "dead man" by lashing the winch line to a log and burying the log. It's a job, but when you gotta get there, you gotta go. A tow from another winch truck will work, but being pushed by another truck isn't so good. If you're stuck, the truck pushing will probably get stuck, too.

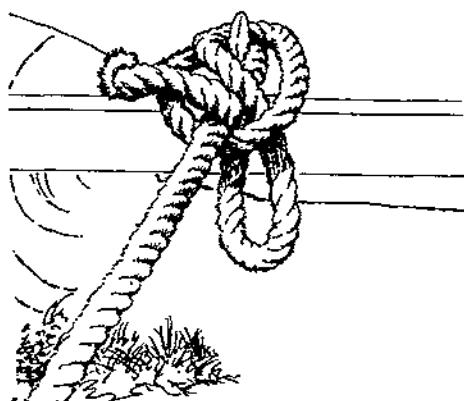
No got a winch? Try old faithful. Two pieces of



Anchored stake.



Deadman.



Clove hitch (end not pulled through).

rope, long enough to reach from the truck to two anchors (trees, rocks or stakes) set directly in front of each wheel. Lash the ropes to the anchors and run them back to the front truck drive wheels. If you have duals on, slip the rope between them. If you haven't, lace the ropes between the spokes and lash them to the hub. Step on the gas and roll out by your boot straps as the ropes wind around the wheels and pull the truck along.

A similar idea is to slip a pole between the duals and make a track for them to roll out on. You'll have to keep on shifting the pole as you come to the end of it.

Don't forget that you can always manhandle a truck, either by hauling it out by hand or by towing with another truck. If you're using a line, a clove hitch is the best knot to use. It won't slip and it's easy to untie.

SWAMPS

The best way not to get stuck in swamps is to stay out of them. But if you can't do that, put your chains on to increase traction, and put the front dual wheels on to increase flotation. Then slip into low and keep moving. Try every trick you've learned to get out. Don't get into the tracks made by other trucks. Break your own ground, and keep moving.

SAND AND DESERTS

You can usually get through sand even when the tires are buried if you keep moving fast enough because the weight of the truck packs the sand underneath and makes a hard surface. Letting air out of the tires to increase flotation will help, but it won't if you have a long way to go on the other side and can't stop to pump them up again. Run the truck in the same track that other trucks have made in the sand. Tearing down a chicken or hog-wire fence and laying it over the worst patches usually works swell—if the farmer's not around.



Tearing down a fence works swell.

Most of your sand driving will be in the desert. When you are doing desert driving there are several tips that may come in handy:

If you get in a sand storm, turn the truck down wind and wrap paulins around the hood—top, sides and bottom—to keep the sand out of the engine. Check your air cleaners every day, and replace the filter element if necessary. Make sure you know all the dope on map reading in Chapter 11. Getting lost on the desert is no joke.

If you are driving on sand that has a top hard crust, do everything you can not to break through the crust. Chains, or mud and snow treads do more harm than good. Dual tires are not as good as single tires, because the duals slice through the sand and cut the crust. If you try and take a curve too fast, the front wheels can easily get locked in the sand and turn the truck over.

Watch out for "rat holes." These are soft sand spots caused by sand drifting over bushes and shrubs. If you hit one of them, you'll be properly stuck. You can usually recognize rat holes because they are lighter than the rest of the sand around them.

The extreme heat in the desert will shrink all rubber and cork gaskets. You'll find that your carburetor will go wacky unless you tighten all the gaskets every couple of days. The heat will also expand all your lubricants, so keep lubricants at the minimum safe level. Too much lube in the desert is as bad as too little. It will get hot, expand and go busting through oil seals and make a fine mess of things.

CROSSING STREAMS

The first thing to do in crossing streams is to take it easy—so let's have a smoke and figure out how to get

through a creek that looks pretty deep. Pretty deep? How deep? In summer you won't mind wading in to find out, so go ahead. In winter you'll need a pole or branch to measure it. If the bank is plenty hard, and you're sure you can get out, nose the truck in slowly, ready to reverse the instant you think you can't make it. Don't trust your eyes alone in a clear stream—water can play funny tricks.

If the bottom is hard and you think you won't stick, and if the stream is not deeper than the lowest vital unit in the truck the water can damage—say the distributor or generator—slip the fan belt off the fan. Loosen the nut on the generator bracket and move the generator enough to remove the fan belt. Why? To keep the fan from splashing water back over the engine and wetting the ignition cables, the generator, the distributor, and the plugs.

Charging into the water will send a wave over the top, so take her through slowly in low and keep *moving*.

You'll have to consider the current when checking the depth of a stream. A strong current will bank against one side of the truck as much as a foot sometimes, and drown you out when you thought you were safe.

Put the fan belt on again when you're on the other side. You can't go very far with a boiling engine. Set



Keep your plugs dry.

the fan belt to the tension the truck manual tells you to and check the ignition system to see that no water is in it. Slam the brakes on hard several times in the first quarter mile to burn them dry. Check them carefully to see if sand or mud got into 'em. Tell your section leader if they're dirty.

If the bottom of the stream is soft, try the brush-straw-cornstalk idea to strengthen the stream beds.

If the water is deep enough to go over the top of the electrical units or the oil filler cap, better start swimming if you're alone, or depend on the motor sergeant to tell you what to do if it's a convoy. It's almost a third echelon job to prepare the truck and put it together again after deep sea navigation. Wrapping trucks in canvas and floating them across is a new dodge, but you can't do this by yourself.

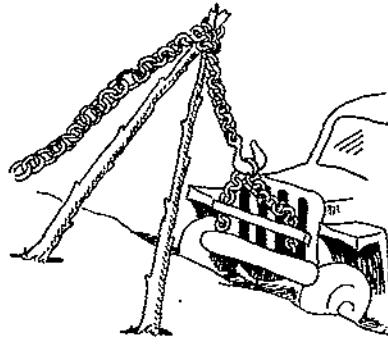
When you get back after a water crossing, check the truck carefully to see if water has entered the transmission or transfer case through the breather holes. Inspect

the front-wheel-drive U-joints and other units that may have had the lube washed out.

DITCHES AND "A" FRAMES

If you have to cross a ditch that's over a foot wide and deeper than the running board or under carriage, get out the shovel and break down the bank. Fill in the ditch until you're sure you won't get hung up. When the ditch is slippery, use brush, hay, or anything else that'll give the wheels traction. Take a ditch at an angle so that one of the front or rear wheels is on level ground while the other is in the ditch. This gives the wheels constant traction and increases the chances of getting through. Or take the ditch straight ahead if you prefer.

If you do get the nose of your truck buried in a ditch in such a way that a straight pull won't get you out, and if you can't be towed out backwards, use the old "A"



"A" frame.

frame device. You'll need another truck to help you although you may be able to do it with your winch. The diagram shows you how to rig the frame, but two points must be kept in mind: Either bury the legs or lash them with a chain close to the ground in order to keep the frame from spreading; and place the frame far enough away from the truck so that you won't run it down as your truck comes out of the ditch.

HILL CLIMBING

Hill climbing tricks are the same for all types of trucks. Motorcycles need a few different dodges, which you'll find at the end of this chapter.

You can generally tell by looking at a hill which gear you'll need to make the grade. Shift before you start up, unless you're an expert. A bad shift on a hill—and they're plenty easy to make—can tear the guts out of a transmission quicker 'n a wink. If you do have to shift,

shift in plenty of time before the truck is going too slowly; double clutch and give the transmission a break.

You'll want to use as much momentum as you can for



Right out the tailgate.

the climb. So at the foot of the hill hit the highest speed you can get in the gear you've chosen.

If, even after you've shifted into a lower gear, it still looks as if you'll stall, shift into neutral just before the engine does stall and slam on the brakes. A truck is plenty heavy; trying to start on a steep hill can put enough shock load on the clutch to ruin it. If the emergency brake will hold, put it on and get out and chock the back wheels. Then, when you release the brake, the truck won't start coasting back and overload the clutch as you let it in. If you can't do this, put the gears in reverse and back down for another try in a lower gear instead of trying to start up again while you're on the hill.

If the engine has stalled, hold the truck with the emergency, start the engine, put the gears in reverse, and let the brake out slowly as you engage the clutch. If the emergency brake won't hold on a very steep hill, put the gears in second or high, engage the clutch and roll back with the gears engaged and the engine off, letting the engine compression brake the truck. It won't hurt the engine. BUT—don't try rolling back with the forward gears engaged, the engine going, and the clutch disengaged. If that clutch ever engages, what will happen to the engine is a sin—to say nothing of what will happen to you when the Sarge finds out.

Never—unless you want to wind up in a grave—go down any hill with the gears in neutral, trusting to the brakes. *Every inch your truck moves anywhere should find it in some gear.*



The Army moves into the new year confident and sure of its mission. To date it has done well.—HON. HENRY L. STIMSON.

COAST ARTILLERY



BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

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Power for base-end stations. Power for base-end stations has been the subject of study for a considerable period of time. This power is required for the lighting of azimuth instruments, emergency fire control radio, and to operate the aided tracking attachments for azimuth instruments and depression position finders. The aided tracking attachments are part of the new data transmission system which will be used with the gun data computers.

The power requirements at base-end stations are such that the use of storage batteries is not desirable. Base-end stations will be equipped with two observation instruments. In most cases, two or more base-end stations are located in each fire control tower. To make maximum use of favorable sites, two or more towers are often located in close proximity to each other. This situation lends itself to the provision of alternating current power from a source located conveniently to all base-end stations on a particular site.

Two sources of power will be provided for all base-end stations, one designated the normal source, and the other designated the emergency source. Normal sources of power include commercial power, fortification power, and local gasoline-engine generators. The emergency source of power will be a local gasoline-engine generator.

The Commanding General, Army Ground Forces, and the Commanding General, Services of Supply, have approved action taken to adopt the Generating Unit M5 as standard and the Generating Unit M6 as limited standard for furnishing power at base-end stations.

Minor repairs. Reports of target practices indicate an increasing tendency on the part of Coast Artillery units to rely on Ordnance Department personnel to make various adjustments and minor repairs during firing. This may be a natural tendency since Ordnance officers and machinists normally will be present during the fir-

ing of target practices with seacoast armament, but it must be borne in mind that during an engagement with the enemy, this assistance seldom will be available. The battery personnel should be trained to perform the adjustments and minor repairs that will be required during firing.

Spread beam searchlight. The Engineer Board has recently developed a means of converting the standard searchlight to a spread beam light for use against high speed water-borne targets at short and medium ranges. In developing the spread beam light the following characteristics were prescribed: first, the standard light shall be the basic unit; second, modifications shall not interfere with the normal long range use of the light; third, the light shall provide for approximately a 10-degree spread; fourth, the change from standard beam to the spread beam shall not require more than ten seconds; and fifth, the device to produce the spread beam shall be such that it can be attached to the searchlight in the field.

Pilot models of the spread beam searchlight were tested by the Board during November, 1942. The development is considered successful and the desired characteristics have been met. The transfer from one type of beam to the other can be made in approximately eight seconds without putting the light out of action. The light controller can follow the target without interruption during the change. The attachments can be removed from or installed on the standard light in less than five minutes. It has been recommended that the procurement and issue of spread beam units be expedited.

Target practices. So many reports of target practice received by the Board are not up to the standards that are expected that it is gratifying to note that several recent practices are outstanding.

A recent report of the firing of a six-inch barbette

carriage battery in the Eastern Defense Command reported the following data:

Hits	5 broadside and 6 bow-on
Average range . . .	10,100 yards
Score	127.0

This practice was rated as "excellent." The accuracy component of the score was well above the average due to the DAPE of 37 yards and a mean of the actual range deviations of 50 yards.

155mm guns—sticking primers. A number of target practice reports are received which relate the difficulties encountered due to the fired primer sticking in the primer seat. In some cases it is necessary to drive the primer case out by inserting a rod in the vent. The first precaution to take to prevent primers from sticking is to check carefully all primers for size and to insure that the primer seat is kept clean during firing. If the primers have been checked for size and do not rupture on firing, it is likely that the failure of the primer case to be removed with the firing mechanism is due to the primer seat in the obturator spindle plug being pitted. The brass case is forced into depressions in the primer seat

which effectively prevent the easy removal of the case.

The obturator spindle plug is screwed into the rear end of the obturator spindle and forms the seat for the primer. When the primer seat is no longer serviceable, the obturator spindle plug should be replaced. This operation can be performed by Ordnance personnel in about three hours. It is suggested that, when a 155mm gun causes excessive trouble due to the sticking of properly sized primers, the local Ordnance officer be requested to replace the obturator spindle plug.

Developed muzzle velocities. The question of how best to determine the muzzle velocity developed by the lot of powder on hand is of prime importance. The present method used in the analysis of target practice is influenced to a great extent by the ability of the battery to strip out all other errors. Errors due to undetermined personnel errors and differences between the actual meteorological conditions and the meteorological message will all be charged to muzzle velocity. Developments are in progress both to improve the meteorological data obtainable and to enable actual determination of muzzle velocities in the field.



The year 1942 is closed, a year in which we saw tragic defeats as well as encouraging victories.

On the debit side stand the losses of the Philippine Islands, Singapore and the Dutch East Indies. The loss of such extensive territories is bad enough, but the blow at our sources of raw materials is even worse.

Gone are our principal sources of rubber, tin and quinine. We have had to make changes in our way of life and in our whole economy to compensate for their going, and the changes to be made in the future will be much greater.

Our defeats came in a bunch. We were sent reeling in the first round. Since then we have not only been holding our own but also have begun to strike back—and strike back hard.

The Battles of the Coral Sea and Midway opened the second round—our round—and our movement into the Solomons took the Japanese by surprise.

And then just eleven months after Pearl Harbor—came the latest news. A powerful American expeditionary force landed in North Africa. The third round has started. Our troops are equipped "with adequate weapons of modern warfare." The President told you this. Those weapons are the ones which workers have been diligently producing for many months. They have been selected as fitted for the duties that they are now called upon to perform. We have every confidence that they will give our fighting men what they need to fulfill the important mission on which they are now embarked.—HON. ROBERT P. PATTERSON.

Coast Artillery Journal

Fifty-second Year of Publication

COLONEL FREDERIC A. PRICE, Editor

LT. COL. ARTHUR SYMONS, Associate Editor

MASTER SERGEANT CHARLES R. MILLER,
Circulation Manager



The JOURNAL prints articles on subjects of professional and general interest to officers of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of any official or branch of the War Department.

The JOURNAL does not carry paid advertising. The JOURNAL pays for original articles upon publication. Manuscripts should be addressed to the Editor. The JOURNAL is not responsible for manuscripts unaccompanied by return postage.

The United States Coast Artillery Association

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The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of materiel and methods of training and by fostering mutual understanding, respect and co-operation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

Washington Meeting

Officers of the Coast Artillery Corps on duty in and around Washington met at the Army and Navy Club with their wives on December 10 for a late afternoon cocktail party. One hundred and three persons took advantage of this opportunity to renew old friendships and to acquire new friends.

This was the second meeting of local Coast Artillery officers in an endeavor to bring together those who are widely separated in office or field location. These meetings have been such a pronounced success that a third one is planned for late in February.

OCS Overseas

In addition to the eighteen separate branch officer candidate schools maintained by the Army in twenty-four locations in the United States, officer candidate schools have been established and are in operation overseas.

Combined with the desirability of giving every enlisted man of the Army, no matter where he may be stationed, an opportunity to earn his commission through attendance at a candidate school, the War Department particularly appreciates the added qualification in the case of an enlisted man who has served overseas, especially if he has experienced actual combat during his service. Consequently, since the inception of the officer candidate program, several thousand candidates have been returned to schools in the United States from points all over the world where United States troops are garrisoned.

However, because of the distances involved, the time required for return to the United States, and the irregularity of transportation, officer candidate schools have been established overseas also and several classes have already been graduated. While the capacities of such schools are necessarily a military secret, candidate schools have been established for some time in Australia, England and a limited number of small island bases. Additional schools will be authorized as the need arises.

CAOCS in Australia

The *Holly Ridge Barrage*, Camp Davis newspaper, reports that a Coast Artillery Officer Candidate School is now in operation in Australia, and is headed by a former member of the Davis OCS staff. This is the second CAOCS on foreign soil; the first was opened in England.

Popular Names of Military Planes

The United States Army and Navy have decided to refer to military planes by their popular names, in press releases and broadcasts. The names, and present designations of the planes, are listed:

HEAVY BOMBERS			
Army	Navy and Marine Corps	Name	Original Manufacturer
B-17		Flying Fortress	Boeing
B-24	PB4Y	Liberator	Consolidated
MEDIUM BOMBERS			
B-18		Bolo	Douglas
B-23		Dragon	Douglas
B-25	PBJ	Mitchell	North American
B-26		Marauder	Martin
B-34	PV	Ventura	Vega
LIGHT BOMBERS			
A-20	BD	Havoc (Attack)	Douglas
A-24	SBD	Dauntless (Dive)	Douglas
A-25	SB2C	Helldiver (Dive)	Curtiss
A-29	PBO	Hudson (Patrol)	Lockheed
A-34	SB2A	Buccaneer (Dive)	Brewster
A-35	SB2U	Vengeance (Dive)	Vultee
	TBD	Vindicator (Dive)	Vought-Sikorsky
	TBF	Devastator (Torpedo)	Douglas
		Avenger (Torpedo)	Grumman
PATROL BOMBERS (FLYING BOATS)			
OA-10	PBY	Catalina	Consolidated
	PB2Y	Coronado	Consolidated
	PBM	Mariner	Martin
FIGHTERS			
P-38		Lightning	Lockheed
P-39		Airacobra	Bell
P-40		Warhawk	Curtiss
P-43		Lancer	Republic
P-47		Thunderbolt	Republic
P-51	F2A	Mustang	North American
	F4F	Buffalo	Brewster
	F4U	Wildcat	Grumman
		Corsair	Vought-Sikorsky
SCOUTING OBSERVATION (SEAPLANES)			
	SO3C	Seagull	Curtiss
	OS2U	Kingfisher	Vought-Sikorsky
TRANSPORTS			
C-43	GB	Traveler	Beech
C-45A	JRB	Voyager	Beech
C-46	R5C	Comatmando	Curtiss
C-47		Skytrain	Douglas
C-53	R4D	Skytrooper	Douglas
C-54	R5D	Skymaster	Douglas
C-56	R5O	Lodestar	Lockheed
C-61	GK	Forwarder	Fairchild
C-69		Constellation	Lockheed
C-76		Caravan	Curtiss
C-87	JR2S	Liberator Express	Consolidated
		Excalibur	Vought-Sikorsky
TRAINERS			
PT-13 & 17	N2S1 & 3	Cadet	Boeing
PT-19 & 23		Cornell	Fairchild
	N2T	Tutor	Timm
PT-22	NR	Recruit	Ryan
BT-13 & 15	SNV	Valiant	Vultee
AT-6	SNJ	Texan	North American
AT-7	SNC	Falcon	Curtiss
AT-8 & 17	SNB2	Navigator	Beech
AT-10		Bobcat	Cessna
AT-11		Wichita	Beech
AT-13 & 14		Kansas	Beech
AT-15		Yankee-Doodle	Fairchild
AT-19		Crewmaker	Boeing
		Reliant	Vultee
LIAISON			
L-1		Vigilant	Vultee
L-2		Taylorcraft Grasshopper	Taylorcraft
L-3-C		Aeronca Grasshopper	Aeronca
L-4-B		Piper Grasshopper	Piper
L-5	ME	Sentinel	Vultee

Antiaircraft Marching Song Contest

The United States Coast Artillery Association offers a cash prize of \$100.00 for the best Antiaircraft Artillery marching song submitted by July 1, 1943. The winning composition will be judged on both words and music. A full announcement of the details of the contest will appear in the March-April issue of the JOURNAL. Please do not submit entries for the contest before the announcement in the next JOURNAL.

New Circulation Chart

The dream of every editor—an extension to his circulation chart—has been realized at the JOURNAL offices. The circulation curve ran right out of the frame, so an extension chart was made up to hang above the old one. We offer thanks and congratulations both to our subscribers and to those tireless missionaries who have, faithfully through the years, extolled the merits of the JOURNAL to non-subscribing Coast Artillerymen.

Quantity subscription orders are still helping to swell our circulation figures. Lieutenant Colonel V. W. Wortman, executive of the 65th Coast Artillery, sent in twenty-three new names. Captain Roderick J. Britton, adjutant of the 469th Coast Artillery Battalion, sent in the eight subscriptions necessary to pull his unit into the select ranks of the hundred percenters. Lieutenant Colonel Edmund H. Stillman forwarded eighteen subscriptions from a group of future officers who believe in getting a good start—the senior class at Michigan State College. Second Lieutenant George W. Spurgeon, adjutant of the 14th Coast Artillery, sent in fifteen subscriptions; and Captain Albert Michel, adjutant of the 264th, gave us the names of eleven more new subscribers.

From Lieutenant Colonel Paul L. Reed, 1st Battalion, 502d Coast Artillery, came seven new subscriptions. Colonel Reed is one of the JOURNAL's most consistent boosters, and over a period of years he has introduced the magazine to many new officers. The 20th Coast Artillery, commanded by Colonel Joe F. Simmons, sent in twenty-seven subscriptions, with the Colonel's signature on the letter. It always helps to know that unit commanders believe that the JOURNAL is an important training publication.

The 479th Coast Artillery Battalion rang the bell with the biggest order received in quite a while—forty-one subscriptions for a 100% record for the 479th. An unusual order came from Colonel Louis Thompson, on foreign service. Colonel Thompson sent in his own sub-

scription and three for Australian officers who had seen the JOURNAL and were impressed by its content.

Lieutenant Stanley A. Newlin, of the 489th Coast Artillery Battalion, submitted the names of nine new subscribers. The 423d Coast Artillery Battalion, through Captain K. S. Kennerly, adjutant, used an A.P.O. money order to pay for thirty-two subscriptions.

Last-minute returns brought in seven more subscriptions from the 469th CA Battalion, submitted by Lieutenant Joseph Weisman, Personnel Officer, to keep the unit among the 100 percenters; Captain James E. Burch of the 479th sent in six more subscriptions to keep that unit's 100 per cent flag still flying. The 422d sent along the two subscriptions necessary for its 100 per cent record.

Lieutenant John J. Davala, of the 439th Coast Artillery Battalion, sent along twenty-six subscriptions, including twenty-five new ones and the renewal of Lieutenant Colonel Alvin T. Bowers. From Lieutenant Benjamin L. Fonorow, of the 386th Coast Artillery, came twenty-four subscriptions.

Marine Corp Unit Number 670, c/o Postmaster, San Francisco, California, sent in thirty subscriptions, with the unusual proportion of seven officers and twenty-three enlisted men. Lieutenant Colonel Wells W. Miller signed the accompanying letter. There are already many Marines on our circulation list; we are proud of this evidence of inter-service solidarity.

As of January 15, the 601st Coast Artillery has submitted the names of eighty-six new subscribers in four months. The commander of this regiment, Colonel Hubert A. McMorrow, evidently believes in the JOURNAL as a training aid for his unit.

Undoubtedly more group subscriptions will come into the office between the time the JOURNAL goes to press and the time it is ready for distribution—these new group orders will be listed in the next issue.



New Training Films

Among the recently released training films that will be of particular interest to Coast Artillery Corps personnel are TF 1-903, *Identification of U. S. Army Aircraft—The A-28 Lockheed Bomber*; TF 1-912, *Identification of U. S. Army Aircraft—The P-39 Bell Pursuit*; and TF 4-643, *Care and Maintenance of the 90mm Antiaircraft Gun, Part IV—Orientation and Synchronization*.



AA—Fighter Figures

War Department Communiqué No. 278, December 27, 1942, stated, "From the beginning of the North African operations until yesterday 227 enemy airplanes have been destroyed: 128 by the RAF; 102 by the USAAF; sixteen by antiaircraft fire; and thirty-one at night."



Benjamin Oliver Freeburger

Fifty-one Years at Fort Monroe

In January, 1892, the first issue of the *Journal of the United States Artillery*, the forebear of the COAST ARTILLERY JOURNAL, was published at Fort Monroe. On May 2 of that same year, a former clipper sailor of twenty-five, named Benjamin Oliver Freeburger, went to work for the Quartermaster at Fort Monroe. Now known to practically every Coast Artillery officer with more than a year or two of service, Ollie has seen Fort Monroe, the Coast Artillery Corps, and the JOURNAL come a long way. Not many of the Coast Artillerymen know Ollie's full name, and few of them ever thought to ask. It was enough to know that since 1918, when he helped organize the Coast Artillery Mess, Ollie has been information bureau, friend, and faithful employee.

Although Ollie's advanced age and years of service would normally have resulted in retirement, he is determined to stay on the job for the duration of the present war. Randolph Hall would not be the same without him.



Mine Planter Radio Broadcast

The Army Hour, the Army's own radio program which is heard on Sunday afternoons over a nationwide network, and which is broadcast by short-wave to our troops at foreign stations, recently broadcast a program which originated from a mine planter stationed at an eastern Coast Artillery Post.

The broadcast, which was especially well done, carried the listener from the mine dock, where the mines were loaded and armed, to the mine planter. After a short tour around the mine planter, during which the

personnel of the vessel were introduced to the radio audience, the microphones were switched to the mine casemate. After explaining the operations incident to plotting the course of an enemy ship, the broadcast was shifted back to the planter, which was already on its way to the mine field. A mine was dropped and marked, and the point of origin was shifted to the casemate once more, where the planter itself was tracked.

Interviews with the Harbor Defense Commander, the planting officer, the master of the planter, and other personnel, were especially well handled, and should have given the general public a good idea of the sort of Coast Artillerymen who guard our harbors.

The *Maybach* and the *Spurgin*

One of the latest of the Coast Artillery's fleet of mine planters is the *Maybach*, which was launched on December 2. The vessel was named in honor of Colonel Alfred A. Maybach, a Coast Artilleryman whose varied service included assignment as Director of the Department of Engineering at the Coast Artillery School, Executive Officer of the Coast Artillery School and the Third Coast Artillery District, Assistant to the Chief of Coast Artillery, student at the Army War College, Harbor Defense Inspector at Fort Mills, and duty with the 91st Coast Artillery. Colonel Maybach died May 26, 1930.

Since the *Maybach* was launched, another planter, the *Spurgin*, was christened by Mrs. Barbee Rothgeb. The vessel was named in honor of Colonel Horace Fletcher Spurgin who was retired August 31, 1938, and died January 30, 1939, at Norfolk, Virginia.

Colonel Spurgin was born at West Point, New York, in 1882, and entered the Academy in June, 1902. Commissioned in the Infantry in 1906, he transferred to

the Coast Artillery Corps in 1907, and served in that branch until retirement. During World War I Colonel Spurgin served in France with the 6th, 51st, and 37th CA regiments, and participated in numerous offensives and engagements. Later service included details at West Point, the Army War College, and the Office of the Chief of Coast Artillery. At the time of his retirement, Colonel Spurgin commanded the Harbor Defenses of Chesapeake Bay.

WAAC Units in the Field

Work of many varieties now is being handled by units of the Women's Army Auxiliary Corps at various stations in the continental United States.

Aside from the units that are assigned to duties at the First WAAC Training Center at Fort Des Moines, Iowa, and the Second WAAC Training Center at Daytona Beach, Florida, the largest proportion of companies now on duty is assigned to Aircraft Warning Service work.

Nine operations companies and eighteen filter companies are already in the field. These companies are at work in New York City, Norfolk, Virginia; Philadelphia, Pennsylvania; Boston, Massachusetts; Baltimore, Maryland; Portland, Maine; Albany, New York; Harrisburg, Pennsylvania; Syracuse, New York; Wilmington, Delaware; Charleston, South Carolina; Jacksonville, Florida, and Miami, Florida.

These companies, serving with the aid of additional volunteer workers, are manning filter boards and information centers that chart the movement of planes on the East Coast.

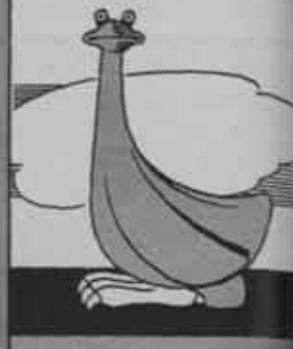
German six-barreled trench mortar, believed to be an electrically-fired rocket gun, captured by the Russians at Velikie Luki.

Novostok





Coast Artillery Activities



Southern California Sector

BRIGADIER GENERAL FORREST E. WILLIFORD, Commanding

Under the supervision of T/4 "Gashouse" George Lester, boxing has reached a new high at Fort Rosecrans. A battery league has been formed, adding heavily to the popularity of the fight programs. At the present time, "D" Battery is on top of the league standings. Pfc. Ontiveras, of the M. P. Detachment, and Corporal Rollins of "D" Battery are setting the pace for the leather pushers.

An inter-battery basketball schedule has been drawn, with games being played on local Y.M.C.A. courts. Battery "G" has one of the strongest teams in the league at the present time.

To round out the sports program, a barnyard golf league has been initiated. Four horse shoe courts have been built and matches are held daily.

Candlelight, a comedy of mistaken identity, was presented December 9, by the San Diego Community players.

Captain De Von Ellsworth, Post Chaplain, recently returned from a four-week course at the Army Chaplain School at Harvard University. The *Cannon Report's* interview with Chaplain Ellsworth clearly shows that no partiality is shown officers at Army training schools. The Chaplain brushed up on his knowledge of chemical warfare, map reading, Army morale, and military law.

A hilarious, fast moving USO-Camp Show was presented November 27. The show, *Hollywood Follies*, was appreciated by one of the largest audiences of the year.

Enlisted men and officers dug deeply into their pockets to raise the grand sum of \$1,200 for the San Diego War Chest drive which ended the latter part of October.

When a lieutenant spans a private it isn't news, but when a private spans a lieutenant it is news. Only a father could get away with such a breach of military courtesy—and in the privacy of their home. But at Fort Rosecrans, Private Myron D. Collins of the Regimental Band, came to a snappy salute when his son, Lieutenant Dean F. Collins, passed by. Collins Senior enlisted in the Army and was sent to Camp Roberts. Collins Junior

received a commission in the Reserve Officers Training Corps after his graduation from Brown Military Academy. He was assigned to the Military Police Detachment here at Fort Rosecrans almost simultaneously with the transfer of his father, from Roberts to Rosecrans. Yes, the worm has turned. Now Private Collins must come to attention before his superior. "Son—I mean, Sir—can I use the car tonight?"

A group of Fort MacArthur soldiers with make-up paint in their blood, footlight glare in their eyes and a message in their madness, have made Los Angeles theatrical audiences sit up, take notice, and finally, roll in the aisles of the Belasco Theater in Los Angeles, with their fast-moving, gag-studded revue, *Hey, Rookie*. Proceeds of the show, which features the acting of Private Sterling Holloway, the original tunes of Private J. C. Lewis, and the inspiration of Sergeant Johnny Walker, are turned over to the Athletic and Recreation Fund of the Harbor Defenses of Los Angeles for the benefit of all men in the Post or Harbor Defenses. The cast of fifty soldiers from HDLA has become the talk of the town, for their success has been meteoric.

A unique, unprecedented twist in benefit performances was initiated by the *Hey, Rookie* show in late November, when they played for the Athletic Funds of the surrounding Naval Bases in the Harbor Defense Area, as a symbol of the amity and cooperation that exists between the two services. The affair, a huge financial success which netted more than a thousand dollars for the fund, was attended by many of the commanding officers concerned—Colonel W. W. Hicks, commanding HDLA. Commander Jones, executive officer of the Naval Operating Base, Commander Gwinn, commanding the Naval Section Base, and Colonel Verne C. Snell, executive officer of HDLA and commanding officer of a local regiment.

One of the hits of the performance was the display of Coast Artillery and Harbor Defenses army and navy matériel in the lobby.

Teaching old dogfaces new tricks and new dogfaces old tricks, Fort MacArthur set up its own basic training battalions, designed to make soldiers out of green re-

cruits. An officer's training school acts as a refresher course for those officers who, for one reason or another, might be rusty on their military routine.

Fort MacArthur Miscellany . . . Women truck drivers made their appearance, and according to Major Haynes Odom, motor officer, their efficiency is "excellent". . . A steady influx of celebrities, all offering entertainment to HDLA's personnel included Bill Tilden, Benny Goodman and his band, June Havoc, Faye MacKenzie, Les Hite and his orchestra, Abbott and Costello, Bette Davis, Dinah Shore, Carmen Miranda, Virginia O'Brien, Willie Hoppe, Freddie Martin and his band, Jan Garber and his orchestra,

and many others. . . Reception Center's famous mess got national publicity on a recent Army Hour broadcast.

. . . A PFC jumped to full Colonel, but there was a catch to it. He was an honorary New Mexico Colonel.

. . . First Holy Name Society on an army post was formed at this post under the guidance of Matt Gallagher, local USO representative. . . The *Alert*, post publication, celebrated its first anniversary in mid-December with a big banner edition. . . Colonel Milton Hill, who was General MacArthur's Inspector General and one of the last men to escape from Corregidor, joined the officer staff of the post. . . Charles Medinins became the fort's youngest major at 26.



BRIGADIER GENERAL LARHETT L. STUART, Commanding AAATC

By Captain Frank M. Dailey

The past few weeks have brought an unusually early and severe winter with its snow, icy lake-shore breezes, and sub-zero temperatures. This consistently cold weather has kept the ground covered with a blanket of snow and ice, and has presented unusual conditions under which all organizations continued to carry out their prescribed training program. Almost every day some organization is having a tactical problem in the areas near here, under conditions not unlike those that face the soldiers on the cold Russian front.

The operations and problems conducted in extremely cold temperatures during the past few weeks have been invaluable. Much has been learned from tactical problems and from firing under conditions as they exist here. "Winterizing" is the word that is of utmost importance for without it meagre results could be expected of our matériel. All guns must be cleaned of grease and oil on moving parts and in their place must be substituted a very light coat of thin oil. Even then it has been found that in some instances and on some matériel graphite must be used when the thin oil becomes sticky and hard, thereby hindering smooth operation. The ever valuable 50-caliber machine gun must have, in addition to the cleaning of oil and grease, anti-freeze substituted for water in order that the barrel will not freeze to the water jacket. Although the director, oil gear units, and

power plants have proven themselves quite reliable they must be warmed up for fifteen minutes to a half an hour to get accurate and reliable data.

Firing too, has continued unabated during the winter, but under quite different circumstances than in mid July. At present advantage must be taken of every day that a plane may be flown to fire either an automatic weapons or gun practice. Here a clear sky is the exception rather than the rule as almost every day a foggy mist hangs over the lake causing limited visibility and flying ceilings. Too, the weather predictions are uncertain more than a few hours in advance, and lake conditions are not always the same as those a few miles inland, therefore every available minute must be utilized when a clear sky permits a target mission to be flown.

In order to fire under short notice everything necessary to permit firing must be coördinated so that schedules may be complied with. In this connection the 9th Tow Target Detachment that is attached to the Training Center deserves a special word of praise because of their coöperation and assistance. The planes from the detachment are specking the sky, regardless of temperature, every time they are able to get a clearance for flying. On the few clear days there are always three or more separate tracking and towing missions being flown, when the temperature in the cockpits of the planes is

often twenty below zero. Never once has this interfered with the completion of a mission.

The target detachment does much more to further training than fly towing and tracking missions. The observation plane that now has the facilities to operate from the rifle range, located near the center of the post, affords organization commanders an opportunity to see what their units look like from the air. The plane brings home simulated attacks upon gun and automatic weapons batteries while they are going into position and while they are alerted. Almost all foot marches are given a tree-top level strafing to teach the men to disperse rapidly and bring small arms fire upon the attacker. Motor convoys have simulated low level and dive bombing attacks to train truck drivers in the importance of keeping tactical intervals. The lessons learned are not finished when the plane has landed, but in reality have only begun. Officers take pictures from this plane so the men in the batteries may see what their gun positions, bivouac areas, and camouflage look like from the air and how they would look to an enemy observer or attacker. By the use of these pictures in a delineoscope at critiques and schools valuable training and tactical lessons are learned, mistakes clearly pointed out and methods of camouflage discipline improved.

All branches of the Service coöperate closely in carrying out their individual training requirements. The Great Lakes Naval Training Station located near here has freely offered its facilities for maintaining and housing *Miss Sheridan*, the Cris-Craft rescue boat of the AAA Training Center. During the early winter months when the lake is spotted with ice the Naval Training Station made special arrangements for keeping its equipment available to us even after they have ceased their water operations. In turn, our officers consulted with the staff of the Naval Training Station in the construction and operation of their recently con-

structed antiaircraft training center. Also, the Coast Guard has moved two patrol boats from Chicago to Waukegan in order to provide rescue boats and to tow water targets when our boat is frozen in its harbor. This close coöperation between the various branches in this area certainly dispels any ideas of disunity of command that may exist with the skeptics.

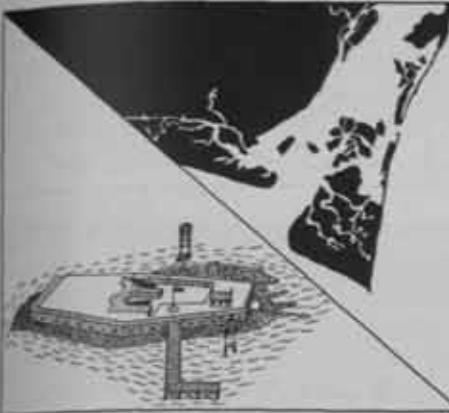
On the days when outdoor training is inadvisable the organizations have the use of large buildings where they can conduct artillery drill and other instructions. The buildings are now all equipped with electrical tracking devices that give director trackers valuable training that they would otherwise not have on cloudy and snowy days. The most helpful aid for indoor training is the recent completion of a new clay and gravel floor in the 100 by 225 foot riding hall that permits us to carry on many training activities such as artillery and foot drill, inspections, and director tracking training.

The officers, in addition to their winter training, are still continuing their military education in the school system here. In addition to the required schools, all officers must take an Identification of Aircraft course which lasts one hour and a half a day for three weeks. This school teaches recognition of a hundred different type planes, and on the final examination it was found that the class average was eighty-three planes out of a hundred with half a second to a second for identification. Then each week a refresher class of an hour is held for all who have taken the course so that it may be kept up to date. Another class of considerable interest is the officer's SCR-268 familiarization course. The purpose of this school is to acquaint all officers with the capabilities and limitations by teaching theory and actual operation of the SCR-268 so that they may know what is to be expected of it in combat operation. These two schools, in particular, have been highly recommended by all officers who have attended.



The Goal of War

"The destruction of the enemy is the goal of war, but there are many roads to this goal. Every operation must be dominated by one simple, clear idea. Everybody and everything must be subordinated to this idea. Decisive force must be thrown in at the decisive point; success is to be purchased only with sacrifice."—GENERAL VAN SEECKT: *Thoughts of a Soldier*.



SOUTHERN SECTOR

Eastern Defense Command



BRIGADIER GENERAL HAROLD F. LOOMIS, Commanding

By Major Robert L. Hood, Jr.

All active Coast Artillery batteries have completed at least two service target practices, and it has been a source of satisfaction to note that with each practice the batteries have shown marked improvement. Recently a battery at Fort Moultrie fired a night service practice with surprisingly good results; in fact, the results of this practice were superior to the two previous daytime practices.

During recent months each battalion combat team of Southern Sector has conducted weekly overnight field exercises which have played an important rôle in demonstrating the fitness and high degree of training of each combat team. One such exercise was conducted in the vicinity of Carolina Beach, North Carolina, on the morning of December 10. At 0400 the attached engineers simulated an air attack by setting off small demolition charges in various locations adjacent to the camp area of the combat team. This was a complete surprise to the personnel and made sounding of further alert alarms unnecessary. The attacking force was represented by one rifle company from the combat team. The plan of attack developed was a feint on the left flank with the main effort as an enveloping force on the right flank. The defending force, a composite company made up from several units, was prepared for such a move but did not have sufficient strength to hold their line. The exercise ended when the attacking force penetrated the line of defense and captured their objective. Credit is due the defending forces for they had the difficult mission of defending an exceptionally wide front.

A realistic combat team maneuver in which all weapons organic in an Infantry battalion and attached Field Artillery were fired to simulate the noise and confusion of battle, and in which extraneous bits of information collected in the face of the enemy were evaluated and converted into intelligence, was held in the Florida Everglades December 14-15, 1942. The assumed situation was that enemy forces had effected a surprise landing on the west coast of Florida and were moving east over the Tamiami Trail with the evident intention of capturing Miami and isolating south Florida. In order to meet this threat it was assumed that a regimental combat team made contact with the enemy forces about

fifty miles west of Miami, and that the battalion combat team was given the mission of protecting the left flank of the regimental combat team. At 140200 December the Commanding General, Florida Subsector, ordered the battalion combat team to move by motor at 0800 into concealed bivouac in the vicinity of Richmond, Florida, and to remain there until further orders. During this movement the column was under a continuous enemy air attack simulated by Navy dive bombers dropping bags of flour. At 141700 the combat team was ordered to proceed after dark to a detrucking area in the vicinity of PINCREST, movement was made without lights and was under constant bombing attack of Army heavy and medium bombers. During the remainder of the night the combat team organized and occupied its positions. Targets representing the enemy's dispositions had been set up during the late afternoon of the preceding day. The combat team personnel had been acquainted with sketches of the different targets and instructed to direct proper fire on appropriate targets. Targets in place represented tanks, mortars, machine guns, AT guns and Infantry assault companies. Movement of the enemy, both in attack and commitment of reserves, was accomplished by Combat Intelligence messages, and the combat team commander was given freedom of movement within the scope of safety control during the firing. At daylight dynamite charges simulating an enemy barrage were discharged and the battle was on. After approximately three hours of battle the enemy forces withdrew and the maneuver was called off. Upon examination of the targets it was found that the firing of all weapons, rifles, machine guns, mortars, AT guns and 105mm howitzers alike, had been accurate and destructive. Lieutenant General Drum, Commanding General, Eastern Defense Command, Major General Eckfeldt, Commanding General, 26th Division, and Brigadier General Loomis, Commanding General, Southern Sector, observed the maneuver and praised the entire combat team for a job well done.

Schools in Bomb Reconnaissance were held for sector troops at Fort Moultrie, South Carolina, and at Carolina Beach, North Carolina, during the month of December.



Corregidor



I SHALL RETURN!
MACARTHUR

Philippines in the War*

By Manuel L. Quezon, President of the Philippine Commonwealth

The Japanese General Staff perhaps counted on an easy victory when they ordered the attack on the Philippines.

Only about 14,000 American troops were there to block the way. Nothing seemed necessary but to overwhelm this small force—and then the road would be open for the Japanese to continue the southward march to speedy victory.

But if the Japs thought so, a bitter surprise was in store for them.

92,000 Filipino soldiers instantly sprang to the side of MacArthur's handful of Americans. Overnight, the Philippines became world-wide symbols of dogged courage. Twenty thousand Filipino soldiers and three thousand American soldiers died in the fighting, knowing that they were stemming the enemy long enough for the United Nations to mobilize their far-flung Pacific defenses.

When the Battle of the Philippines was over, the name of the Fighting Filipinos was indelibly written on that special page of history where mankind has placed Thermopylae, and Valley Forge, and the Marne. The Fighting Filipinos had fought for freedom as only free men fight. They and their American allies had upset the time-table of the Japanese advance so thoroughly that, even in defeat, they had accomplished one of the great delaying-actions of all time.

That, in a nutshell, is the historic military contribution which the people of the Philippines, under MacArthur's military command, made during 1941 and 1942 toward the ultimate victory of the United Nations. Just as little Belgium stopped the Germans in 1914 long enough for the Allies to gather their forces for defense, so in this present war fate decreed that the newest outpost of democracy, the Commonwealth of the Philippines, should bravely obstruct the march of the Japanese aggressors in the Pacific.

But there is more to tell about the rôle of the Philippines in the war than merely a great military saga: In total perspective, my nation is more fundamentally important in ways which are largely nonmilitary—ways which have to do with the things of the human spirit, without which no great military feat such as the Battle of the Philippines is ever possible.

The wartime achievements of the Filipino people

have been the outcome of a unique national history that has given us the strength and the democratic character which make a people willing to die for their freedom. That is why the Philippines are important in more than merely a military way: we Filipinos are a symbol to the whole world, not only of the spirit of personal sacrifice through which this war must be won, but also of those principles of mutual respect and equality among nations which are basic post-war aims of the United Nations.

Let me stress that, when war came, the President of the United States had the lawful power to call into the service of the United States all the organized armed forces of the Philippines. President Roosevelt did not do this. *Of their own free will*—and mark this well—the Filipino people stood by the United States, placing at the disposal of President Roosevelt not only our Army but all our man power and everything we had.

The reason is to be found in the enlightened spirit and methods employed by the United States in its relations with the Philippines since 1898. My people have been treated by the people and government of the United States, not as an inferior colony fit only to be exploited, but as a fellow-nation which had a right to independent self-government.

The story of American administration of the Philippines is thus a story of square-shooting which fostered in the hearts of all Filipinos their burning desire for freedom. With American help, the Filipino people achieved constantly increasing self-government, culminating in the Commonwealth established under President Roosevelt in 1935, with complete independence soon to follow.

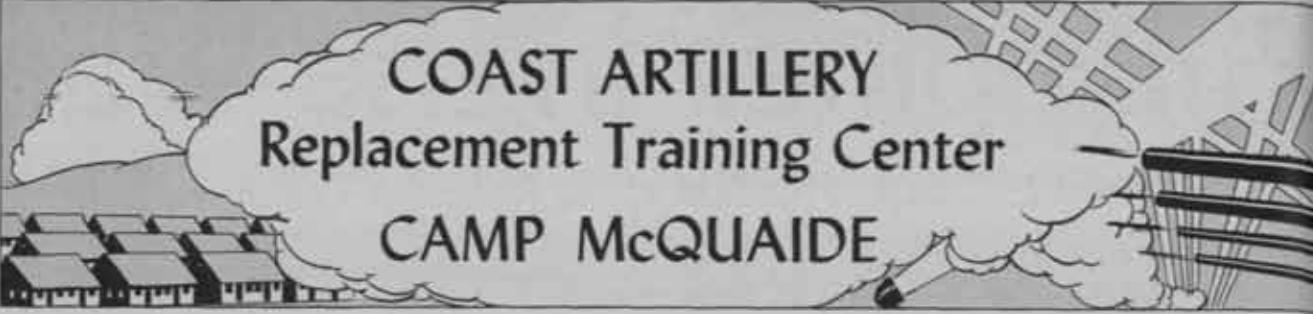
The end-product of this policy was that, when the Philippines were attacked, we Filipinos had something worth fighting for.

All of the great military feats which the world then witnessed—in Bataan, and elsewhere in Luzon, Visayas and Mindanao during the Battle of the Philippines—were thus a perfectly natural and inevitable outgrowth of applying the freedoms later set forth in the Atlantic Charter. To the people of the Philippines, those principles were nothing new or untried. For years, they had been coming to fruition in the Philippines.

The Filipino people have for all time vindicated the policy of self-determination and have lighted a guiding beacon for the post-war world which is now in the making.

*From *United States at War*, by permission of the editors of the *Army and Navy Journal*.





COAST ARTILLERY

Replacement Training Center

CAMP McQUAIDE

BRIGADIER GENERAL FRANK S. CLARK, Commanding

By Lieutenant Franklin L. Deibert

The men of Camp McQuaide have proved in more than one way that they can be good citizens as well as good soldiers during the past fall season. Farmers of the surrounding countryside, facing a serious shortage of labor for the harvesting of apples, lettuce and tomatoes, put out a call for all persons to volunteer for this work in their spare time. Many of the trainees and cadremen volunteered to give up their Sunday day of rest to go out into the fields and render aid in saving the crops from complete loss. The men were paid for their labors at the prevailing wage scale, either by piece work or by the hour. Groups of ten to fifteen men were made up, with a noncommissioned officer or foreman "bossing" each group. Several of the men working on piece work made as high as fifteen dollars for a single Sunday's work. The farmers and crop owners were especially pleased and appreciative of the soldiers and made their work more pleasant in many cases by serving light lunches and refreshments. It was something new for many of the men—especially from the Eastern states, who had always picked their apples, lettuce or tomatoes from the sidewalk fruit and vegetable stands. Although somewhat weary after the first day's adventure, the men who were new to the farm laboring enjoyed their work and were anxious to return the next Sunday. Many of the trainees, having originally come from farms themselves, stated they were glad of the opportunity to get back into their old work again for a change.

A Community War Chest drive held in the neighboring town was enriched several hundreds of dollars by donations from the officers and soldiers of Camp McQuaide. Voluntary contributions ranged from fifty cents to fifty dollars, and all felt that they were donating to a worthy cause.

Being a baby among the Army's replacement training centers, Camp McQuaide's CARTC drew much attention from other sections and various commands of the nation. Recently three different inspection parties called on Brigadier General Clark and inspected the newest of Uncle Sam's training centers. Major Samuel Woodfill of the Replacement and School Command was enthusiastically received by officers and men on his visit and he told of heroic experiences in World War I. Major General Harold R. Bull, commanding the Replacement and School Command, with Colonel Joseph V. Phelps, Major Max McCord of the Operations and

Planning Section and Lieutenant Edwin R. Culver III, Aide-de-Camp, made a two-day tour of the CARTC and studied the training schedules and policies in effect here. Colonel Leon C. Dennis and Lieutenant Theodore F. Treadway, Jr., of the Coast Artillery School, Fort Monroe, Virginia, were also welcome visitors. They looked over the various installations and talked with recent graduates of the school.

Having recruited some fine musicians, Chief Warrant Officer James E. Osburn has completed the task of bringing the CARTC Band up to its authorized strength. The Band turns out for daily drill periods in addition to a retreat parade held each Saturday afternoon. The dance orchestra, which is made up of members of the Band, has been enthusiastically received whenever it makes an appearance, especially in view of the fact that it features its own arrangements of popular tunes. The USO dances held in town on Saturday nights have proved to be extremely popular with the men since the organization of the band.

A welcome new addition to the post is a combination service club and gymnasium. Five nights a week are at present taken up with a full basket ball schedule. One night per week is reserved for USO shows and boxing bouts and the remaining night is held open and used for dances and parties.

The oiling of drill areas has been a great improvement, especially so since the rainy season has now started. Also oiled and hard topped are the areas in the gun park and around the artillery ranges. Other improvements and additions include the opening of a new rifle and small arms range and the construction of an obstacle course of the latest type.

Overs and Shorts, the weekly newspaper, continues to be published and gains in popularity. War Department officials and similar officers of the various training centers of the Army voice enthusiasm for the eight column paper and state it's one of the best they have seen. A special edition was brought out for Christmas and featured many photographs, among which were a series of trick photos purporting to show what the man in the Army wanted for Christmas. These photos provoked much laughter among the men in the Camp and helped a little to boost the spirits of those who were not lucky enough to get passes over the holidays.



New York-Philadelphia Sector



MAJOR GENERAL JOHN L. HOMER, Commanding

By Captain George W. Shine

Concurrent with the performance of the Sector's combat mission, the Coast Artillery units have maintained an arduous period of training. Target practices have been fired with mines and every caliber of gun located within the Harbor Defenses. The results have been very good with several excellent practices thus far attained. Small arms qualification, in the main with the M1 Garand rifle, has continued during the Fall and Winter. Night operations with searchlight and plane-dropped flare illumination of targets have proved a necessary and vital phase of training.

All Harbor Defenses have received new recruits who are presently in the final stages of their mobilization training. The caliber and intelligence of the new men together with their eager spirit of learning how to be soldiers bids fair for an excellent new group of Coast Artillerymen.

Field exercises, participated in by each of the Combat Team Battalions during the past two months, demonstrated the individuals' ability to withstand the hardships of cold, snow, winds and darkness. The Field Artillery fired at both anchored and towed water targets and over the heads of the Infantry from rear positions. Exercises of this kind will be continued for the greater perfection of the Combat Team's maneuvers and training in all weather, day and night. Speed and accuracy with the experience of firing service ammunition imbues a spirit of combat in which each unit must excel.

The Special Service branch of this Headquarters and Recreation Officers of the lower units, aided by the co-operation of the Service Command and the generosity of the USO, have provided recreational entertainment within the Harbor Defenses down to and including battery and company units which, in the accomplishment of their combat mission, are segregated and necessarily located beyond the limits of normal entertainment facilities. Movies, shows, musical instruments and games are provided for all.

Boxing and basketball are Winter's prime sport inter-

ests. Team matches between adjacent forts and stations create a spirited zeal of competition resulting in fine matches for both the players and the spectators.

Instruction in the art of Judo has been given to selected members of each unit. These men, upon returning to their respective batteries or companies, have conducted daily classes for the instruction of all members. Extended road marches, obstacle courses and Judo build men of "sterner stuff" with which to combat the enemy.

Presentation of the Purple Heart, awarded to the late Charles W. Berry of Mt. Vernon, N. Y., for wounds received in action at Chateau Thierry, France on June 6, 1918 was made to his wife, Mrs. Charles W. Berry, by General Homer on December 4 at Fort Hamilton. Mr. Berry was serving the Army as a civilian and was lost at sea when his ship was torpedoed by a U-boat in the Gulf of the St. Lawrence.

Scores of Officer Candidates have been sent to various schools each month. The vacancies, though numerous, are not wanting for able candidates. In several instances, individuals talented in special subjects have given of their time to instruct likely candidates in the fundamentals of subjects pertinent and basic for the particular branch in which candidates aspire to obtain a commission.

Both officers and men have attended specialists schools of many kinds—following which, by instruction to their units upon return, the latter receive the latest information about the subjects studied.

Salvage of obsolete matériel has been accomplished at each fort. Guns with long histories of combat have been added to the nation's scrap pile to be converted into modern guns and ammunition to enhance the defeat of our enemies. Miles of steel rail and obsolete 12-inch railway mortars were contributed by Fort Hancock alone to complete a round total of 3,000 tons.

The sale of War Bonds continued to increase each month with the spirit of "help" by every means pervading each unit and exploited by every individual.





The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, *Commandant*

By Lieutenant Colonel W. B. Logan

The Coast Artillery School continued its many activities right through the Christmas holidays with all the departments operating at full strength. The end of the calendar year brought the graduation of the officers from the Battery Officers Course and the subsequent formation of the new class. Among the graduates of that group were Sidney Halley-Harris, Lieutenant (sg) and Oscar Villegas (jg) of the Chilean Navy. They have left Fort Monroe for temporary duty at one of the Harbor Defense Posts for further study.

In Group Fifty-one of the Battery Officers Course approximately half of the officers are men who were officers in the last war and who have revived their commissioned status and volunteered to return to active service.

A new field officers course started the first of the year with about twenty-five officers in attendance. The course is of four weeks duration and under the supervision of Lieutenant Colonel Donald Kimball of the Department of Tactics.

The Officer Candidate School held graduation exercises for several classes and the newly commissioned officers were addressed by the Commandant, Brigadier General L. B. Weeks, of the Coast Artillery School. In one of his talks the General said:

"It has always been a thrilling experience to me to see young officers going forth to join the Coast Artillery Corps. I have been in that branch for many years and have found it to be a very interesting and satisfying life to live. That is why the men that join the Coast Artillery mean a lot to me and a lot to the other officers that have spent many years in that arm of the service."

"It is particularly delightful and inspiring to see so many of the parents present. It is unfortunate that travel accommodations are such that more parents could not

be present to witness this very important step in the life of an Army man.

"When you first arrived here twelve weeks ago, I talked to you briefly on the two purposes, as we saw them, for which you came to the School. One was the acquisition of a certain amount of knowledge of the duties of a Coast Artillery Officer. You have perhaps felt that the course was crowded and a busy one. We hope that it was. We always hope that the School can give you every possible item of practical knowledge that you can absorb in the time available and great diversity in the kinds of equipment and work, and so far you have read hardly more than a very condensed index of the things that you will encounter and have to know about in the way of organization or equipment and how to handle and take care of the men entrusted to your care and administration.

"We trust that you realize that and will always continue to work hard in the acquirement of more knowledge. Always look to the future. Be prepared for work not only in your Coast Artillery career, a fine habit to get into, but be prepared for the days when most of us will go back to civilian life. A man who knows his job is completely reliable, trustworthy, and ready for added responsibilities both in civilian life and in the Army.

"The second point I talked about was the personal qualities essential to a young officer, or basic for any officer in the Army no matter how high in rank. Those qualities are complete honesty and dependability, and continuous watchfulness for the welfare of your men, that they are well fed, well clothed, housed and trained, so far as is practicable in the conditions under which they live, whether in garrison or field.

"You may have heard over the radio a talk by General McNair, primarily aimed at Army personnel, al-

though it was delivered to the civilian populace of the country. In his talk he quoted from statistics of the last war showing that in view of the intense and highly efficient training of the German Army, their losses in battle were half or less than those of the forces opposing them in warfare.

"It is a very important fact that soldiers trained to the peak and who know what to do, have twice the opportunity to come through alive or uninjured than men who are not so well trained.

Therefore, it is the responsibility of the Army that the enlisted men have the great advantage of completely efficient and thorough training, not only that battles may be won, but that they may be won with as little cost of life and injury as possible.

The qualities of leadership depend upon some of those factors that you can acquire—square dealing with the men and the feeling that you know your job and are doing everything possible to teach them their job. This involves the individual quality in each officer of sticking with the job and having the backbone to stay with it when the going gets tough and seeing it through regardless of personal discomfort, fear or danger.

"For the men who are going forth from this graduation exercise to that responsibility and career which we all have at heart, I feel confident that you will meet these responsibilities. We wish you well and all success."

In the most recent graduation exercise held for the Officer Candidate School, Brigadier General Rollin L. Hilton, Commanding General, Chesapeake Bay Sector, spoke to the newly commissioned officers. He urged the graduates "Never to forget that a commission in the Army is not just another job; that it is an honor, the trust and confidence of your government and a great responsibility not only for yourself but for the lives and welfare of the men entrusted to you."

The production of training films and film strips goes on with Major Harold F. Greene of the School Staff in Hollywood. He has five more scripts on the 155mm gun in production in coöperation with the commercial studios there, while the Signal Corps has another unit in production working in the South under the direction of Lieutenant Charles E. Skinner.

Three training films have been released recently: *Routine Cleaning and Painting of the 155mm Gun*, TF 4-934; Part Five of *The Twelve Inch Gun on Barbette Carriage—Safety Precautions*, TF 4-634; and Part Eight of *The Twelve Inch Gun on Barbette Carriage—Checks for Pointing in Direction*, TF 4-948. Film strips released include Part One of *General Information on Coast Artillery Ammunition*, FS 4-31, and *Identification of Merchant Vessels*, FS 4-28. Coast Artillery Training Bulletins released recently include No. 5—*155mm Gun GPF Handbook*, No. 6—*The M1 Deflection Board*, No. 7—*Notes on Training*, and No. 8—*Identification of Merchant Vessels*. Training bulletins scheduled for release in the near future include *The Identification and Uses of Enemy Small Craft*, *The Use of Film Strips*, *Lubrication of Coast Artillery Matériel*, *Courses for Enlisted Men, Armor Attack and Fire Effect*, *The Audio-Reception System, M1*, and *The M1 Gun Data Computer*.

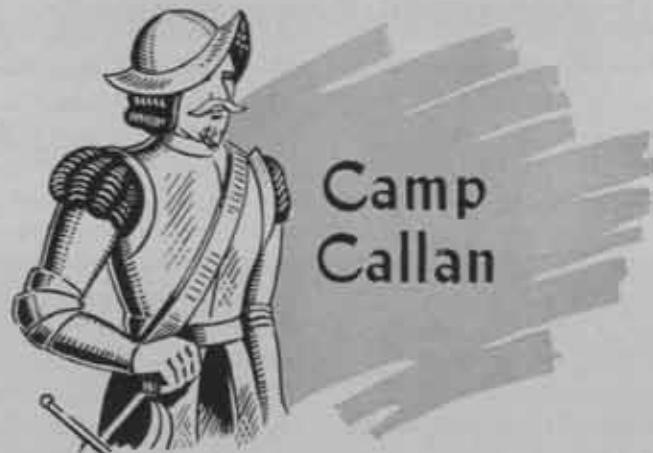
These training bulletins are distributed automatically upon publication to the various harbor defenses for subsequent distribution to the individual units. Unit commanders and individual officers of the Coast Artillery can obtain additional copies of these bulletins upon request to the Commandant, the Coast Artillery School. However, no individual names will be carried on the mailing list.

The Enlisted Specialists Department has augmented its Staff with several new instructors and is busy turning out highly trained enlisted men in many subjects. This Department held graduations the first of the year with General Weeks congratulating the soldiers at ceremonies held in the Post Theater. The following courses graduated simultaneously: Electrical, Data Computer, Master Gunners, Automotive, and Special Equipment Section.

The Coast Artillery School Bowling League is rolling along with three teams running close at the top. They are the Department of Artillery Number One, the Coast Artillery School Detachment and the Visual Aid Section. Major Howard Michelet of the Submarine Mine Depot has taken most of the individual honors so far, leading in averages, high game, and high set.



It isn't the size of the dog in the fight that counts; it's the size of the fight in the dog.



Camp Callan

BRIGADIER GENERAL FRANCIS P. HARDAWAY, Commanding AAATC

By Captain W. J. Hauser

Camp Callan Officer Candidate school quotas have been increasing these past few months. Candidates for antiaircraft officer training is the primary objective with an increase from a quota of ninety-six in June, 1942 to a high of 250 for a single month. The other arms and services have increased from thirty in April to fifty-nine in December. In this group enlisted men have been detailed to Infantry, Field Artillery, Chemical Warfare, Coast Artillery, Army Administrative, Quartermaster, Armored Forces, and others. The combined total of all quotas filled from April, 1942 through December for Camp Callan was over 2,100 for all Officer Candidate Schools.

Volunteer Officer Candidates arriving initially about August 15, have aided materially in filling the increased Antiaircraft quotas. This class of applicants comes into the service with definite qualifications and a definite purpose in view. They receive the same training as other officer candidates and are judged by the same standards.

Administration of this important task has required the setting up of a section to process the applicants for Officer Candidate training. At present the section is composed of a field officer and three clerks. This field officer is the senior member of the Officer Candidate Board and one officer from each battalion is a member of this board. Meetings are regularly held one day a week and additional meetings are also required to handle the load of work.

All antiaircraft prospective candidates attend regular school courses provided to equip them to enter the Officer Candidate School. Other candidates are given a course of instruction in administration. Candidates who are below average are given additional instruction where necessary and when their time comes to be detailed to Officer Candidate School, there is a feeling that those so detailed are qualified to pursue the school of the arm of service for which they have been selected.

The Camp Callan Antiaircraft Replacement Center Plans and Training Section has worked out some very interesting problems including the development of a

master control chart for the control of the 200 yard range, automatic weapons firing, gun firing, balloon firing, searchlight practice, towing missions and marches. Each subject of training is represented by a different color on the control chart which is made to cover a period of eight months, showing the daily set-up on each item of training. As an example, if a certain battery is scheduled to be on the 200 yard range for five days, January 25-29, a small shield, colored to represent the 200 yard range, is pinned over these particular days for the organization concerned. In case a change is necessary, due to weather conditions, the entire schedule can easily be shifted as the training is controlled four months in advance.

All training battalions are represented. Batteries of the school battalions are staggered to enable the separate batteries to conform to the training of the battalions in accordance with the arrival of the troops, therefore these batteries of the school battalions are normally at four different stages of training. This control chart has proved very satisfactory in regulating the controlled items of antiaircraft replacement training.



Trainees manning a 40mm gun.

Development of identification of aircraft training has brought forth various ideas in addition to the Camp Callan aircraft identification chart as outlined in the September-October issue of *The COAST ARTILLERY JOURNAL*. As a means of visual study of the various important identifying features of aircraft, actual pictures are projected on a screen by the use of a balopticon. Thus, photographs of planes in flight may be shown and carefully studied.

Antiaircraft Artillery target practice has come into its rightful proportion rapidly since the conversion of Camp Callan from a Coast Artillery (Seacoast) Training Center to one for Antiaircraft Training. The necessary equipment is now nearly complete. Great interest has developed in the firing of these weapons at various types of targets.

In a recent 90mm firing practice at towed targets, the newly trained personnel tracked their target, loaded and fired—and made a direct hit on the first shot. The hit was so direct in every detail that the shell blew up the sleeve target.

Conditioning of troops is another item on the training schedule that receives its portion of attention. To condition new troops gradually requires a little training each day, eventually increasing to the overnight marches in preparation for field duty. New marches are inaugurated from time to time along the cliffs overlooking the ocean to the west of Camp Callan. Then too, the back country furnishes a variety of marches of greater length and overnight bivouacs. The original obstacle course, too, is not what it used to be. In the face lifting or modernizing process, new and interesting features were added to this important item of training during the past few weeks.

A word picture about dimout applied to a military camp along the coast line could well be given. Camp Callan is located on high ground overlooking the ocean and with its commanding position definite steps for

local passive protection have been taken. Soon after the declaration of war, the cream colored cantonment buildings were painted a dull lusterless green. Later, came the dimout, and dimout is almost blackout when viewed from the ocean. All street lights are shaded to prevent direct light rays upward or horizontal. All interior lights are shaded to prevent direct light from shining out the windows toward the sea. Added to this, all automobiles and other motor vehicles driven at night are required to use dimout lights and slow their speed. Dimout lights for motor vehicles in camp and along the coast permit only 250 beam candle power per lamp and that amount is very little as compared to the former authorized low beam road lights.

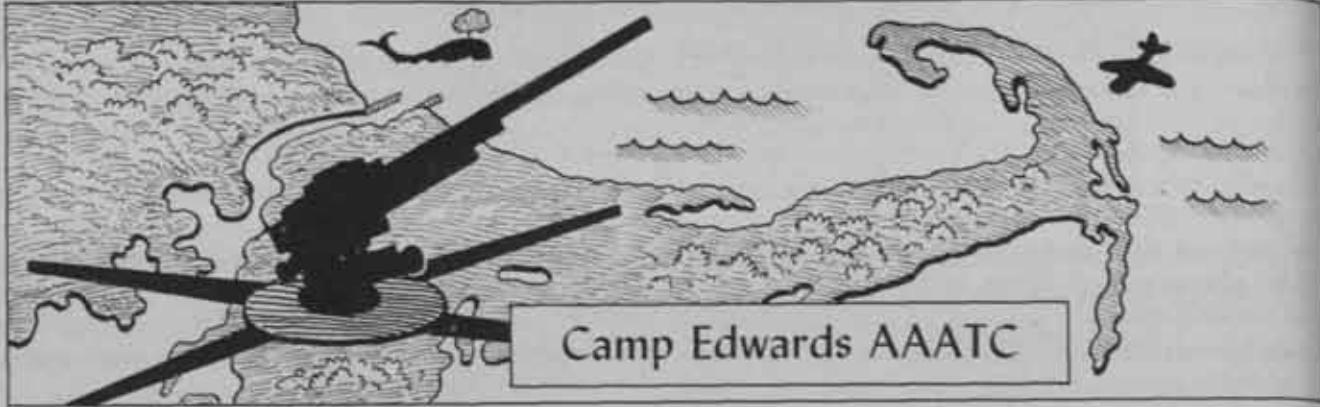
The fall scrap drive in the San Diego Area was a huge success. Army, Navy and Marine Corps trucks were thoroughly organized for collection of all types of scrap assembled by the population in the San Diego City Area. The collection was somewhat competitive in that the Army collected the material one Sunday, the Marine Corps on another and the Navy on another Sunday. To climax the drive of collecting the huge pile of scrap, the Army, augmented by all available vehicles from local transportation companies, worked hard and long the final Sunday.

Defense Command officer training has been organized at Camp Callan recently. This program of education is in the form of a refresher course for the many officers recently reporting for duty and who have not been active in Antiaircraft Artillery during the present emergency. The concentrated coördinated schooling equips the individual officers better to cope with the present antiaircraft officers' problems.

In the early part of December, the Antiaircraft Command Inspection team from Richmond, Virginia and Camp Davis, visited Camp Callan. Colonel Frank C. McConnell was the senior member of the party covering the various camp activities and progress of training of the battalions.



Trainees climbing the cliffs.



Camp Edwards AAATC

BRIGADIER GENERAL MORRIS C. HANDWERK, Commanding

By Lieutenant John H. Thornton

The wintry winds which come howling down across Cape Cod, nearly lifting the 90mm guns off their outriggers, in no way have slowed down the training program at the Antiaircraft Artillery Training Center, Camp Edwards. Snow-drifted gun parks are no novelty on the Cape. But instead of heading for the warm barracks, a second firing range has been acquired by the AAATC and more facilities than ever before are being used by the units in training, in order to insure that soldiers from this command may deliver effective fire on the enemy under all sorts of weather conditions.

Two ranges are operated on a full time basis by the AAATC at Camp Edwards. But even with this number of firing points, careful planning is required to make full use of the facilities. Proceeding on the basis that time is of the essence, the ranges are now in use every day in the year that weather permits. Schedules are worked out months ahead of time for the units in training so that each may be permitted to fire its basic and record courses at the appropriate period in the Mobilization Training Program. Often the use of the ranges is so accurately calculated that a battalion will move onto the firing point and have its guns fully emplaced before the last truck of the preceding convoy has pulled out of the front gate.

Oldest of the two firing points is that at Scorton Neck. It is situated on Cape Cod Bay near the picturesque and historic village of Sandwich, Massachusetts. Looking out across the Bay toward the entrance to the Cape Cod Canal, Scorton Neck is an ideal training ground for antiaircraft units.

Approaching from Sandwich, the bivouac area is encountered first. Here is provided enough camping space for a battalion. Units engaged in firing set up camp in this area. A road leads directly from the bivouac area toward the beach. The actual firing is conducted from behind a low ridge of dunes along the bay. Near the beach are located the permanent buildings for the AAATC records section at Scorton Neck. A permanent mess hall, offices, barracks and a post exchange have been set up at the point for the group of trained observers on duty there. Recently these permanent facilities have been supplemented by the construction of ad-

ditional barracks, which, when completed, will house an entire battalion. Thus, an uninterrupted training schedule is insured during the months of inclement weather along the New England Coast.

Along the firing line at Scorton Neck ample space is found for each battery to locate its own guns as desired and conduct fire from the positions selected. Target practice with all types of antiaircraft weapons is held at this range. Usually a battery will fire with two types of weapons each time it visits the firing point.

Every possible simulation of battle is presented to organizations firing at Scorton Neck. For example, firing at night is a regular part of the training program. Practice against high speed targets is now conducted by each organization. Part of the basic firing of each unit must be conducted with the guns "dug in" and camouflage erected. During the Fall and early Winter months a group of South American officers observed all of the AAATC training program at Camp Edwards, with particular emphasis on the techniques employed by units conducting fire.

Full safety precautions are observed. Excellent cooperation from the Coast Guard keeps the little fishing vessels, which frequent the coast, out of the field of fire. In addition, the standard safety tower and full telephone and radio communication are part of the equipment for supervision of the firing. One innovation which has been



Snow and cold do not interrupt training at Edwards.



Portable safety tower.

of considerable interest to visitors at Scorton Neck is the portable safety tower. It was erected on the bed of a standard Army vehicle and permits free movement up and down the firing line to the particular gun position where fire is being conducted at the moment. A glass enclosed cabin protects the safety officers from the stiff breezes.

A records section is maintained at Scorton Neck by the AAATC to furnish a continuous flow of data to the range sections of the gun batteries. Personnel from units in training are instructed in the work of the record section so they may supply the firing record data for their own organization. Equipment of the most recent type is employed, including theodolite cameras set up at the observation stations.

Poponesset Beach, on the other side of Cape Cod, is the second firing point now in use by the AAATC. It was acquired last fall and is situated on the South side of the Cape along Nantucket Sound, looking out toward Martha's Vineyard.

Situated along a low bluff overlooking the water, Poponesset Beach offers a safe field of fire more than 2,200 mls in extent. A pine forest extending back from the firing line affords an attractive background to the range. Here the trees provide an excellent bivouac area. Safety towers have been erected and several permanent buildings furnish all the storage space necessary to conduct firing regularly.

It is planned to employ the Poponesset Range chiefly for automatic weapons units in the training center. Automatic Weapons target practice has proved unusually successful at this firing point. In addition to the towed sleeve targets, balloons are released from the beach for practice shooting.

Much of the success of the firing at Camp Edwards may be attributed to the excellent cooperation of the Tow Target Squadron from the Air Corps, stationed at Otis Field. Air liaison officers from the AAATC work in closest conjunction with the Air Corps. The coordination which has resulted between the pilots hauling the sleeve and flag targets hundreds of miles each week and the antiaircraft artillery officers on the firing line has meant a minimum of wasted courses on both firing

points. This willingness on the part of the Tow Target Squadron to furnish courses of every type desired has contributed measurably to the high degree of accuracy achieved by units firing at Camp Edwards. The planes fly daily missions over Camp providing tracking practice for the unit drills. At night the Tow Target Squadron furnishes missions for the searchlight batteries.

Another adjunct of the firing program is the height finder school sponsored by the training center. Its centralized feature has made it possible to furnish instruction of the highest type. Air missions are also important to the height finder pupils in their early lessons, which are climaxed when their respective organizations conduct fire and they become a vital part of the range sections in the gun batteries.

Antiaircraft Artillery's secondary mission has by no means been neglected in the firing program of AAATC at Camp Edwards. Careful supervision is given to preparation of fire against land- and water-borne targets.

No difficulty has been encountered in providing facilities for practice firings against water-borne targets. Both firing points are adjacent to the water, and in addition, Camp Edwards possesses an excellent anti-mechanized range. It is of the gravity type, which presents a target moving at sufficient high speed and irregularity to simulate a tank in action. Recently, a target shaped like a boat has been constructed as an experiment for firing against water-borne targets on dry land. A known distance rifle range for small arms practice is also used by all units training at Camp Edwards.

Always foremost in this picture of young, vigorous antiaircraft artillery units learning to use the weapons which will make them so dangerous to enemy aviation, is the physical conditioning program of the troops. Units often march to and from the ranges and during advanced training, surprise march orders are given. It is a familiar sight these winter nights to find organizations driving toward the firing point in a full black-out and no surprise when the guns are set up at the firing ranges in the dark and the sky above the wind-swept shores of Cape Cod lighted with brilliant tracers. Antiaircraft units are taught constantly to surprise and attack, and on their firing ranges the drill is in dead earnest.



Fort

Bliss

BRIGADIER GENERAL JAMES B. CRAWFORD, Commanding AAATC

Antiaircraft soldiers at Fort Bliss AAATC find life these days a series of problems—field problems—which must be solved under conditions as near those of actual battle as possible.

Originating in the AAATC S-3 office, where an experienced staff spends considerable time in their preparation, these tactical exercises are designed to acquaint AA men with conditions and situations they must surely encounter in combat. Realism, above everything else, is stressed and, despite the fact that problems suitable for local terrain are used, it is felt that battle lessons learned in the sand and boulders of the New Mexican desert will prove applicable anywhere.

Field exercises assigned AAATC units grow progressively more difficult beginning with comparatively simple affairs and continuing until troops, undergoing what might be termed "graduation exercises," need only a live enemy to make it completely real. Every possible element an AA unit might meet in combat is incorporated in the problems.

A typical problem, one which has been used successfully by AAATC units, was worked out somewhat as follows:

Forward elements of the "1st Infantry Division" were in contact with the enemy on a line in the Hueco Mountains some miles east of Fort Bliss. Certain valuable equipment which the division had just received required protection against ground and air attack.

Location of the area to be defended was given the Battalion Commander—in this case the AA unit attached to Division was a separate AW Battalion—and the Commander made a thorough ground reconnaissance of the area. He then passed on to his unit Commanders such information as was necessary and operations proceeded.

Intelligence reports—as many as would normally come from a division G-2 during actual operations—were received and the Battalion S-2 was expected to compile a complete intelligence picture from these reports and his own sources.

During the course of operations dummy tanks (jeeps with wooden superstructures) penetrated the Division's front lines. Umpires, who had been thoroughly familiarized with the entire project at a secret session with S-3 officers at AAATC Headquarters, were present in the tanks. They were also aboard low-flying airplanes which bomb and strafe. (Sawdust bombs are used instead of flour, as formerly.)

In all problems umpires are present at every key point. Usually umpires are stationed with officers of similar grade. Under this system devised by AAATC umpires are enabled to render decisions and criticism both favorable and unfavorable and is also a means of excellent instruction to umpires who might at some later date be judged in their own problems.

When a problem has ended a critique is held and Brigadier General James B. Crawford, Commanding AAATC, is usually present. If the critique brings to light a weakness, a new problem is devised which lays special emphasis on that particular weakness; which, after all, is the purpose of the whole training program—to have weaknesses and mistakes corrected before they are pointed out by our enemies.

For units to be ready for combat, all the personnel must be in top physical condition. In addition to unit training the physical training of the individual is stressed. The Physical Training School is to train officers and enlisted men in prescribed physical training methods. It is a four weeks' course and at the end of the four weeks' period every student is as hard as nails.



Members of Ft. Bliss AAATC Physical Training Class demonstrating the "Flying Mare." Note rocky ground.

He then is qualified to take over physical training in his battery. To become a student in the school a man must be a good speaker and have ability to teach others. At present the second course has just begun. The first class had an enrollment of sixty-five enlisted men. It proved so popular and so successful that the present course has twenty-five officers and 100 enlisted men.

Some of the subjects the men are taught include physical training, hand-to-hand fighting, use of knives, bayonet training, ambushes, and plain old-fashioned brawling. But, above all, physical hardening is stressed. Regardless of a unit's knowledge or training, if the men haven't the endurance to stand up and take it—and dish it out—they have no combat value.

During the hours when the school is not in session, Lieutenant Menacker and his husky aides watch over the physical training of the various units training here. Their particular specialty is training newly-arrived officers, so that they (the officers) can get in good shape and set a good example for their men.

One unit, personally trained by Lieutenant Menacker, and already on foreign duty, is one of the toughest outfits in the army. They are experts at all types of fighting. They marched twenty-five miles in six hours and

forty-five minutes and not one man dropped out. At the completion of the march, made at night, they did a whole day's work. Of course they were tired, but they wouldn't admit it. They kept smiling and were ready to lick any Japanazi in sight.

Some of the physical training methods used here are new but they show results. One of the best conditioners is called "Timber Training." Logs, twenty feet long and six to eight inches in diameter, are used. Each weighs close to 300 pounds. With four men to a log, the drill they go through is plenty tough and the men get tougher every time they work out. Some of the exercises are so difficult that the men can only perform about four to five repetitions. But with proper training they increase the number of times they can do the exercise, and soon are able to handle the logs with ease.

One thing is certain. When an officer or enlisted man arrives at the AAATC here at Fort Bliss, he may or may not be in good physical condition. But by the time he leaves here he is full of vim, vigor, strength and endurance. He is well trained and has pride in his outfit. He has an abundance of fighting spirit, and his slogan is—

"GET TOUGH—TREAT 'EM ROUGH!"



Logpushing—An exercise requiring perfect coördination and teamwork. Logs weigh as much as 300 pounds.



Camp Wallace

COLONEL HUGH N. HERRICK, Commanding AAARTC

By Lieutenant James C. McMains

A widely varied series of events have taken place at Camp Wallace during the last sixty days, highlighted by visits of several officials in Antiaircraft Command at Richmond.

Brigadier General G. de L. Carrington of the AA Command, with an inspection team of seven other officers spent several days at the post and was highly pleased with the training progress. Inasmuch as General Carrington is a former Commanding General of Camp Wallace, his visit was received with additional interest, and while on his tour of inspection, he spent much of his time renewing old acquaintanceships.

Armistice Day was quite an occasion at this Post, with a huge parade and review in Houston, and Open House at the Camp itself. The Houston event was one of the outstanding in the country. Men and equipment from Camps Hood, Swift, Hulen, Fort Crockett, Ellington, and Camp Wallace took part in the mammoth affair which included organizations from Tank Destroyers, Air Cadets, Infantry Combat Units, and Antiaircraft Artillery. The troops were reviewed by Lieutenant General Walter Krueger, Commander of the Third Army and other high Army and Navy Officers. In addition a Searchlight Group, from Camp Wallace, journeyed to Tyler, Texas where a mock night air attack was staged under the auspices of the American Legion.

The Open House was probably the most successful ever planned at this Camp. A complete program was arranged, beginning at 9:00 AM and concluding at 4:30 PM. Many phases of training undertaken by the new antiaircraftmen were vividly displayed for our civilian visitors, and to each one of the 1,600 guests, who attended, a special guide was assigned, so no feature of the Open House would be overlooked. The day's events were climaxed by a review and blessing of the colors by visiting Church dignitaries.

An activity, especially interesting to the new trainee, was the recent inauguration of the "County Fair" type demonstrations. Comprising thirty-five separate exhibi-

tions and covering every phase of training, the shows are presented to the newly arrived troops in their first week to familiarize them with artillery matériel; increase interest; and introduce the training subjects and basic courses; so they may acquire a firm foundation upon which to build their Army training. The results have been very satisfactory.

At several points in the Camp area field fortifications of various types have just been completed. These gun emplacements, including slit trenches, dugouts, barbed wire entanglements and ammunition dumps, are used to demonstrate the use and value of such installations. Different methods of camouflage have been incorporated into each fortification.

Athletic and entertainment features have also been numerous at Camp Wallace lately. To wind up the football season, Battery C, 26th Bn., was crowned Camp Champs when they defeated the strong 1865th Unit, 8th Service Command by a score of 13-0. The basketball season is getting under way and with several of last year's players still in camp the men hope to repeat the successful 1941-42 season, when they won the Texas Amateur Athletic Federation championship in



One of the many exhibits included in the "County Fair" demonstration for the new trainee at Camp Wallace is the Communications Section. Radio and telephone equipment used by the Antiaircraftmen is shown.

Dallas. An innovation in the way of entertainment was found in the appearance of the Singing Cadets of Texas A & M. College, an eighty-man, all-male chorus, which was received with much enthusiasm by all who heard them. The majority of these men will soon be commissioned Second Lieutenants in the Army. Quite a contingent of Ex-Aggies were on hand to greet them and entertain the group at supper.

Major-General Joseph A. Green, Commanding General of the AA Command in Richmond, and Colonel Hugh N. Herrick, Chief of Staff, were also recent visitors at Camp Wallace. Most of their time was spent in conferring with Brigadier General E. A. Stockton, Jr., and making a tour of inspection throughout the Camp. The firing on the Galveston Bay was attended

by the party and the results were very pleasing. A review in their honor was presented in the afternoon and General Green was high in his praise for the appearance and bearing of the comparatively new men in the Training Center.

An event of national interest, in which Camp Wallace participated, was the presentation of a check for more than \$85,000,000.00 to Secretary of the Navy Knox by the people of Houston, Texas in that city on December 21. This amount had been raised by the Houstonians, through the sale of War Bonds, to replace the Cruiser *Houston* which was sunk in the battle of Java. Both of the Camp's Bands took part in the festivities and General Stockton was one of the honored guests.

Chesapeake Bay Sector

BRIGADIER GENERAL ROLLIN L. TILTON, Commanding

By Captain Alfred C. Andrews

Fully aware that the adversaries of World War II are no respecters of entrenched position, the Chesapeake Bay Sector has for many months trained its men and geared its weapons to a new, more fluid mode of warfare. In this respect, CBS, under the continuing guidance of its Commanding General, Brigadier General Rollin L. Tilton, has been following a pattern laid down for the over-all strengthening of the Coast Artillery arm.

Last month and the month before this training program struck a new high in all the headquarters under the CBS command. In the classroom and under simulated field conditions, troops reviewed basic infantry tactics and hiked and worked as conscientiously at infantry work as they do while discharging the normal duties of their own service branch.

Looking back with satisfaction on the progress made, General Tilton in his holiday greeting to the men of the command toward the end of the year, said:

"We have had a long and at times difficult year, but we can look back on work well done and our mission in this sector accomplished.

"We can face the coming year with confidence that whatever it takes us we have made a good beginning."

Earlier, in an Armistice Day message, he had declared:

"Even though the war may at times seem remote, your mission is an important one, for you are guarding our coast line from aggression and in so doing are pro-

tecting the nation's homes and factories. This vital mission can be properly performed only by arduous training and unremitting vigilance."

During these closing months of the year, General Tilton directed each unit of the Infantry Combat Team to spend at least one night a month in a field bivouac, to move to the area under assumed tactical situations, and to conduct night problems. One ration cycle was ordered in the field, and at least one meal eaten under blackout conditions.

At Camp Pendleton, individual and unit training was held in the morning and specialized schools followed. These included intelligence, communications, transportation and unarmed defense.

In November, Fort Monroe, which has been the scene of several recent realistic maneuvers, experienced an amphibious raid by a small attack force whose mission was to destroy the garrison's fire control station, represented by a band stand, then retire. This was a night attack, carried out under blackout conditions. It took the defenders just twenty-seven minutes to repulse the assault, so little time, in fact, that newspaper photographers who were not abnormally tardy arrived too late to cover the operation.

These were spectacular aspects of the training. There were other phases which received no publicity, but contributed as effectively towards accomplishing the mission of the sector. One of these was the inauguration of a bomb reconnaissance school whose goal is instruc-

tion of all sector personnel in this phase of defensive warfare. Another was the instruction of troops in unarmed defense by officers and enlisted men who had received special schooling in this technique. Under-scoring the value of this instruction, General Tilton declared in a training memorandum that "emphasis will be placed by all commanders on physical training and exercises which are calculated to harden the men and to give them confidence in their ability to cope with any enemy under any circumstances."

In still another memorandum, the function of non-commissioned officers in the army framework was reviewed. Unit commanders were instructed to detail noncom duties more accurately, and among other things make certain that through noncoms all men "are security conscious and know what information they are required to give if taken prisoner, and that each man knows the training and tactical mission of the squad and the part he is playing in reaching the objective."

Aside from the training program, the most important news event of the two months was the official visit on November 24 of Lord Halifax, the British ambassador, to Fort Monroe. The Viscount, showing a keen interest in the men and landmarks of the historic old Fort, especially praised an honor guard turned out for him. Touring the fortress, which in the Revolutionary War prevented the British fleet from sending aid to Cornwallis during the siege of Yorktown, the ambassador asked his host many searching questions.

The month of December was not without honors for a sergeant and a pigeon. General Tilton, in a special parade, personally conferred the Soldier's Medal on Sergeant Joseph Lapent of Philadelphia for his heroism in rescuing a man from drowning last September. Later in the month, the general cited for "meritorious service" a homing pigeon based at Fort Story which carried a message from a lost coast guard schooner, giving its position and allaying concern for the ship and crew.

Welcome news, too, was that venerable Benjamin Oliver Freeburger, known to Coast Artillerymen everywhere as "Ollie," now chief clerk at Randolph Hall, Fort Monroe, has considered himself "drafted for the duration." At seventy-five he has had fifty-one years of service.

Sadder news was the sudden death in November of Colonel Russell P. Reeder, seventy, whose last command before retirement six years ago had been at Fort Monroe.

The Oozlefinch, legendary bird of the Coast Artillery Corps, flies again at Monroe in murals at the new PX soda bar, the work of Private David Drinker, a Philadelphia artist in civilian life. The daedalian duck is shown sleepily arising, flying over the moated fortress, firing a coast artillery gun against the enemy, planting a mine from an army mineplanter, then drowsily returning to slumber.

The first opportunity to fire the new M1 155mm guns under coast artillery conditions came at Camp Pendleton during November-December, when two regiments, each commanded by a former Coast Artillery Board member, fired service practices there. The new material gave results which promise to be most interesting when it will be possible to describe them in full.

The use of the super-size artillery target, designed by Brigadier General David P. Hardy, made Case II firing easily possible at extreme ranges even from the lowest sites among the sand dunes.

Proceedings on the Pendleton range were interrupted once when it was announced that one of the men in the butts, behind a twenty-foot-thick parapet, had been "shot." It turned out that a bullet actually had entered a drain pipe at the foot of the parapet, followed its course around a curved length for twenty feet and emerged to smack the unfortunate soldier's hinder end.

Chesapeake Bay waters have resounded almost daily with the sound of firing during the months of November and December. Of especial interest among these firings was that for the training film on 155mm guns by the battery at Fort Story which has been coöperating with the Visual Aid Section of the Coast Artillery School in the production of this film. Twelve of the seacoast gun batteries of these harbor defenses were in action on twenty-seven different days of this period despite very unfavorable winter weather.

Colonel P. J. Herman, commanding the Harbor Defenses of Chesapeake Bay, with the assistance of an inspection team organized from his staff, conducted a thorough tactical and training inspection of the various elements of the Harbor Defenses from November 24th to December 2nd.

During a storm on the night of December 2nd, men from two of the batteries at Fort Story using two of the smaller portable searchlights assisted the Navy in the rescue of men from a grounded patrol boat off Lynnhaven Inlet.



Two things to remember:

1. Buy War Bonds early and often.
2. Keep the JOURNAL informed of changes of address.



Camp

Haan

BRIGADIER GENERAL JAMES R. TOWNSEND, Commanding AAATC

By Lieutenant Harry B. Berman

The period of growing pains for this headquarters and the friction and irritation that come of too-sudden bigness have finally ceased part of their incessant aches. For over two months officers and men were forced to work under such conditions of crowding that lucky was the man who could get a seat at his own desk, or find the telephone. Confusion mounted on confusion, as the sum of work and personnel grew larger, and "office space" became but a memory of infancy. But the New Year and its new era has presented this headquarters with doubled capacity, as the Camp Haan station complement moved into a new building. Quarters for all the staff sections have expanded, and the noise and bustle of the work have resolved into a model of relative quiet and calm.

A new song of the antiaircraft, named temporarily after a unit at this post, received its inaugural blessing in November, with a formal presentation at Camp Haan. The old practice of a woman launching a project received its most eloquent expression when Janet Blair, film actress, led the troops in the singing. Songwriters Jimmy McHugh and Herb Madigan, and producer Eddie Kaufman were guests for the occasion, which included a parade and review in their honor. The first public hearing of the new song was on the Rudy Vallee program November 26, as a soldier glee club spread the musical gospel of the antiaircraft artillery to the nation.

The ceremony of presenting a Distinguished Service Medal was officially enacted at Camp Haan in early December when Mrs. Clinton A. Pierce, wife of General Pierce (now believed to be a Japanese prisoner) received the award, presented by Brigadier General James R. Townsend. The ceremony included a parade and review. The gallantry of the missing soldier, symbolized by the presentation of the award, found a sharp and sympathetic mark in the spirits of the men in the tanks, and the alertness of the parade demonstrated the force of their impressions.

Christmas Day celebrations and events highlighted the end of the year socially, and the occasion was met with a full and warm response. Freddie Martin's or-

chestra made two appearances at the War Department theater Christmas Day. Nine hundred gift boxes presented by the student body of a Riverside High school were distributed to Camp Haan soldiers. For four days of the Christmas week, soldiers were admitted free to all the theaters in Riverside. The Officers' Club held a Christmas eve dance and dinner in conjunction with the opening of the new and enlarged club.

Two new generals have assumed command of units here within the last month: Brigadier General Homer Case, a former commander of a regiment here, and Brigadier General Daniel W. Hickey.

An innovation in training procedure is the new model medical sanitary demonstration area. Planned and constructed by the AAATC surgeon and his assistants, this 100 foot by 200 foot area has been devised to inform all personnel of the requirements for proper field sanitation. The demonstration is arranged as a series of exhibits, so that each of the objects may receive careful individual scrutiny. Arranged in a simple semicircle, the twenty-three exhibits include the chlorination process, lyster bags, grease traps, soakage pits and trenches, incinerators, underground and suspended food containers, latrines, and shower baths, Serbian barrels, and fly traps. Unit medical officers, after first having assured themselves of the details of the preparation of the items and the reasons therefore, then act as instructors for their medical detachment who in turn assist in the instruction of the entire personnel of the unit.

The school program for officers is being expanded and developed under the impetus of shortages of trained officers in certain specialized fields, and to raise the standards of efficiency where such instruction appears mandatory. A school to develop capable personnel officers from among the new second lieutenants and similarly to correct the shortages of qualified communications officers has resulted in the installation of these two courses. Medical officers are attending the basic courses given all incoming officers to acquaint them with the problems and situations they will face in the antiaircraft. The school of Judo will receive additional attention as the increasing importance of skill in hand to



One of Camp Haan's canine trainees. This fellow searches for wounded men.

hand fighting becomes more apparent, and with this end in mind, an officer of this headquarters has been assigned full time instruction in physical exercise and conditioning.

Canine personnel are the newest additions to the antiaircraft. Under the direction of Mr. Lee Duncan, dog fancier and enthusiast, a group of eleven dogs are undergoing their three months basic military training. One- to five-year old German Shepherds, Great Danes, Airedales, and Dobermanns are being trained as guards and sentries, in disarming men, locating the wounded, rescuing drowning persons, and in carrying the loose ends of telephone wire. All dogs chosen for this work are healthy, intelligent, and have a persistent disregard

of danger. Those selected for guard and sentry work are trained to "heel" automatically, to accept the orders of a number of sentries, and to attack an intruder only when told to do so. Gunfire, confusion, or fire will not prompt a dog to flight, barking, or fear.

In training for communications work and in treating the injured, the dogs work with the men in the gun emplacements so that they can become familiar with the activities associated with their job. In the task of detecting wounded and injured men, a short stick is attached to a cord about the dog's neck, which doesn't quite touch the ground as the dog walks along. When the dog locates a fallen man, he will nudge the man or turn him over to see if there are any movements which indicate life. If not, the dog moves on. If the man groans or moves, the dog then grasps the stick in his mouth and returns to his station. Thus the rescuers know when the dog has found an injured soldier, and then can follow him to the spot.

In training the dogs to overpower and disarm a man, the first concern of the trainer is overcoming the dog's natural good-humor and friendliness, and teaching him to attack savagely when given the order. To gain this end, the trainers, after protecting themselves with padding, antagonize the dog with gunshots, simulated anger, and threats, until the dog learns to attack when threatened and upon order. He is taught to lunge at the right wrist and forearm, and a husky German Shepherd can overpower a 200-pound man.

Men as well as dogs must be trained. The proper method of giving orders and handling the dog are essential for their best performance. It takes almost as long to train the men to handle the dogs as it does to train the dogs.

Each morning the dogs stand "sick call" and receive a thorough inspection by the post veterinarian.

Eventually this post will have thirty-two dogs in training here and at work at Camp Irwin.

An inspecting party headed by Brigadier General G. deL. Carrington arrived at Camp Haan on December 7th and conducted a three-day inspection of the units of this training center.

Camp Irwin in the Mojave desert has revealed a store house of geological surprises. Already more than thirty elements have been discovered in the soil strata, and an attractive display of the rocks containing them has been made.



Camp Tyson

BRIGADIER GENERAL JOHN B. MAYNARD, Commanding
Barrage Balloon Training Center
By Lieutenant F. R. Alexander

Camp Tyson is celebrating its first anniversary as the Army Training Center for Barrage Balloons. The orders moving B.B.T.C. from Camp Davis to Camp Tyson were issued January 15, 1942.

The first Barrage Balloon to be sent aloft from a Camp Tyson site was flown February 13, 1942. The balloon was a D-5 dilatable, black in color, and numbered "192." The honor of sending this first balloon aloft went to Battery B of the 302nd Battalion. The 302nd Battalion is the service organization for Camp Tyson and it remains stationed here.

February also marks the first anniversary for Brigadier General John B. Maynard who came from Camp Wallace, Texas, to assume command here February 16, 1942.

The first year has been marked by steady growth. A recent addition of land has nearly tripled the original acreage of the camp, providing a large new area for balloon sites. Sufficient new buildings have been added to a section in the housing area to care for four new battalions.

A class of enlisted men was graduated from the Barrage Balloon School November 28 and was composed of four training batteries. The graduating address was delivered by Colonel J. H. Cochran, Executive Officer of B.B.T.C. A class of officers was graduated December 5 and was addressed by Commanding General Maynard.

New battalions were recently activated and are now carrying on a rigorous training program. Surplus officers in the AAARP are either attached to existing battalions or are going through a course of basic review in the Officers' Training Unit under the direction of Lieutenant Colonel Kenneth J. Woodbury.

All USO-Camp Shows on the major circuit (Red) are now sent here. During December, Blackstone, the Magician, and his troupe, and *Looping the Loop*, a musical stage show, played here. The January schedule calls for the Broadway play, *Room Service*, and another musical revue, *Hollywood on Parade*. Both Camp Theaters broke existing attendance records the last week of December.

Mrs. Isabella Tyson Gilpin of Virginia, daughter of the late Brigadier General Lawrence Davis Tyson, for whom this camp was named, will present a bronze tablet for the main entrance to the area. The sketch for the plaque has been designed and approved but due to the restrictions on bronze as a vital war metal, the tablet will not be cast until after the war. In the meantime, the designer's sketch hangs in the office of General Maynard in BBTC Headquarters building.

General Tyson died in 1929 after a distinguished career as a soldier, educator, lawyer and statesman. He was awarded the Distinguished Service Medal for gallantry in World War I, while commanding the 59th Brigade of the famous 30th Division. He was United States Senator from Tennessee at the time of his death.

The 302nd Battalion, which has trained and furnished the officers and cadre for other battalions going out from this training center, was honored at a ceremonial review December 19, at which General Maynard presented the battalion with its new standard.

The 302nd was activated November 1, 1941 at Camp Davis and its first commanding officer was Lieutenant Colonel A. A. Allen. It came to Camp Tyson February 2, 1942, and is the parent organization. The motto of the unit is symbolic of the entire Barrage Balloon service: *Amat Victoria Curam* (Victory Favors the Watchful).





PUERTO RICO

C. A. COMMAND

COLONEL C. THOMAS STAHL, *Commanding*

By Major W. C. Devereaux

Troops of the Puerto Rico Coast Artillery Command were manning their positions twenty-four hours a day even before the word was flashed over the airwaves that the Japs had attacked Pearl Harbor. Since that day gun drill and stand-tos have been daily routine and blackouts and daylight alerts have been held periodically to increase the efficiency of the troops in the art of modern warfare. New enlisted men and officers, both from the native population and the Continental United States have been inducted or called to active duty and extensive training programs have been carried out to train them in Coast Artillery principles. In addition to the basic training many specialist schools have been held and target practices for both the sea-coast and antiaircraft troops, using both small arms and major caliber weapons, have been fired at frequent intervals, without advance information being given to the units, in order to simulate as closely as possible actual battle conditions. Although there are many things which occur in actual battle that cannot be foreseen in practice, the zest and vigor with which these troops jump to their guns during a practice alert would be very disheartening to any of the Axis partners if they were here to see it. A year of training under wartime conditions has taught both officers and men valuable lessons and the Coast Artillery in Puerto Rico is ready, willing and able to defend these shores.

Perhaps the question has been asked by uninformed persons, just why prepare the defenses of Puerto Rico? And of what military or economic value is this small island located somewhere in the Caribbean? Of course, the immediate answer to these questions is that the lurking menace of enemy submarines in the Caribbean and South Atlantic waters makes the defenses of the harbors and ports of Puerto Rico necessary so that the vital shipping to South and Central America may find a safe haven from hit and run attacks. But from a broader viewpoint the strategic importance of this island, in the protection of the vital sea lanes between North and South America, can be compared with similar islands that are now being contested, namely Malta, Guadalcanal and Midway, where both the United Nations and the Axis have sent valuable material and men in order to gain possession of the islands and control of the nearby sea lanes. It has been proved that the side that can have land based planes within

striking distance of the sea lanes has the upper hand and its ships can pass through these areas and supply the troops with equipment and material to carry the war to the enemy. Therefore although the submarine is the principal menace in the Caribbean, at the present time, in the rapid and fluid type of warfare that is being fought today and will be fought in the future, it is necessary that we control the islands of this territory. The Coast Artillery in Puerto Rico therefore has as a long range mission, the protection of the islands against possible invasion, and as long as this defense is adequate our land planes can operate from their island bases and keep the sea lanes open so that a steady flow of raw materials and finished products can pass safely between South and North America.

Although the military value, due to the strategic location of Puerto Rico, is of upmost importance in considering the reasons behind the defense of the island, it is also interesting to look at the economic value and development during the time that the island belonged to the United States.

The United States troops first landed in Puerto Rico on June 25, 1898, starting what proved to be a short and bloodless campaign which ended with the suspension of hostilities in October of that year. Although it is doubted that our statesmen had the foresight at that time to realize the future military significance of this island in the magnitude that it has become today, it is certain that even at that time the economic and military value was foremost in their minds. Since that time the Government of the United States has taken great strides



A Puerto Rico harbor defense unit enjoys some lighter moments.

in developing this country, which had spent 400 years under the control of a European power, into a first rate country where the industry and initiative of North America is combined with the culture and tradition of South America.

During this period of forty years roads have been constructed so that there is a network of modern highways running the length and width of the island. Schools have been built and the rate of illiteracy has dropped from 80% in 1899 to 30% in 1942. Modern buildings have sprung up in the urban and rural districts; research has been carried out in crop development of agricultural products, and many new crop varieties have been introduced during the time that Puerto Rico has been part of the United States. These are only a few of the improvements made and it is easy to see that the island is considered of economic importance or the Government would not spend these large sums for development. One of the major problems confronting the development of an economic standard, as we know it, is the over-population of this small area. A fact little known by the average person in the United States is

that Puerto Rico is the second most thickly populated region in the world. The latest census shows that there are over 550 people per square mile and that the majority of these people are supported by the raising and producing of sugar and its by-products, the principal crop of the island. Coffee, citrus fruits, bananas and some cotton are also grown and supply some of the population with revenue. Industry is not developed to any extent, the main reason being that there is a lack of raw materials here necessary to sustain manufacturing. Since there isn't a wide variety of consumer goods produced on the island, it is necessary to import most of the necessities of life from the mainland, and during peacetime Puerto Rico ranks tenth on the list of countries to which the Continental United States exports finished products and ninety-two cents out of every dollar earned in Puerto Rico eventually finds its way back to the mainland. Therefore Puerto Rico not only supplies the United States Mainland with the much needed sugar, but also provides the continental producers a good market and in peacetime as well as wartime the value of the island cannot be underrated.



Camp Stewart

BRIGADIER GENERAL EARL H. METZGER, Commanding AAATC

By Captain Walter H. Dustmann, Jr.

Another tank recognition contest participated in by thirteen antiaircraft units was one of the highlights of training activity at Camp Stewart during the past two months.

The tanks, constructed from salvaged materials by the personnel of the participating units during off-duty hours, paraded at the antiaircraft firing range and through the camp so that all the troops might study them, then lined up in front of AAATC Headquarters for the judging. A procession of the original tanks which competed in the first tank contest four months ago followed the parade of the new tanks.

The winning battalion, commanded by Lieutenant Colonel William V. Lunn, won out over the other contestants with its realistic full-scale model of a Fiat-Ansaldo tank and the officers and men who constructed it received a silver cup, a commendation and a three-day pass.

The battalion under Lieutenant Colonel Charles H. Sargent took second prize with its model of a Panzer Kraftwagen, Libyan style. The battalion commanded by Lieutenant Colonel Cecil G. Remington won third place with a German light tank.

A veteran of the first world war who received his commission from an Officer Training Camp in 1917, Brigadier General Paul W. Rutledge brought to Stewart troops a vital message learned from his months in the Pacific war theater:

"The Japanese are tough, determined fighters who take few prisoners in action. We must train our troops accordingly. All troops must be thoroughly familiar with their weapons, must know how to take advantage of natural cover and also must know how to improvise obstacles and shelters . . . finally, I cannot stress too much the importance of improving the physical condition of the soldier and hardening him so that he can



This is the winning tank in the recent tank recognition contest. It is a Fiat-Ansaldo light tank. Twelve other realistic tanks competed.

endure the hardships and survive the hazards of present-day warfare."

Without any appreciable addition in normal training time devoted to training in small arms, excellent results are being produced as to the number of men qualifying. This is largely due to the training in Centralized Troop Schools of key officers and men as instructors; thorough basic instruction prior to firing with the service rifle; and persistent coaching and supervision when on the firing line.

The area outside the firing zones of this huge reservation constantly hums with basic and advanced training activity in field problems.

As the training center and brigade or group commanders well know, many hours are necessary to visit and observe the various elements of a group or regiment engaged in a field exercise. During inclement weather (do not let anyone tell you it does not get cold in South Georgia) the abandoned farm houses and buildings offer excellent locations for various command posts and places where the personnel can secure shelter and warmth during rainy or cold weather.

A great deal of activity is seen on the new Antitank range which was recently put into operation.

Another major event was the visit during November of 107 Georgia Tech ROTC cadets who spent a busy week end here studying the intricacies of antiaircraft artillery in modern warfare. Fifty of the Atlanta institution's cadets will be eligible for appointment as Second Lieutenants in the spring upon completion of their college courses and following special antiaircraft artillery instruction.

Donald Metzger, son of General Metzger, was among the visiting Tech cadets. The trip marked the second of its type to Stewart for the Tech students. A similar trip was made earlier this year.

The loss of the camp Officers' Club which was completely destroyed by fire on November 29 has been very

deeply felt by everyone on the post. The club was the center of the many and varied social activities of the officers and their families. Before the ashes cooled plans were formulated for the replacement and within less than a month construction was started on a new club.

In November, two former Camp Stewart buck privates returned here as Second Lieutenants of antiaircraft artillery, after six months of antiaircraft action on an isle off the African coast and then three months attendance at the Officer Candidate School at Camp Davis, N. C.

They are Lieutenant John W. Edge, Cedartown, Georgia, and Lieutenant George A. Gaines, Elberton, Georgia, who arrived here originally as privates in the 214th Coast Artillery when it was inducted into the Army from the Georgia National Guard in November, 1940.

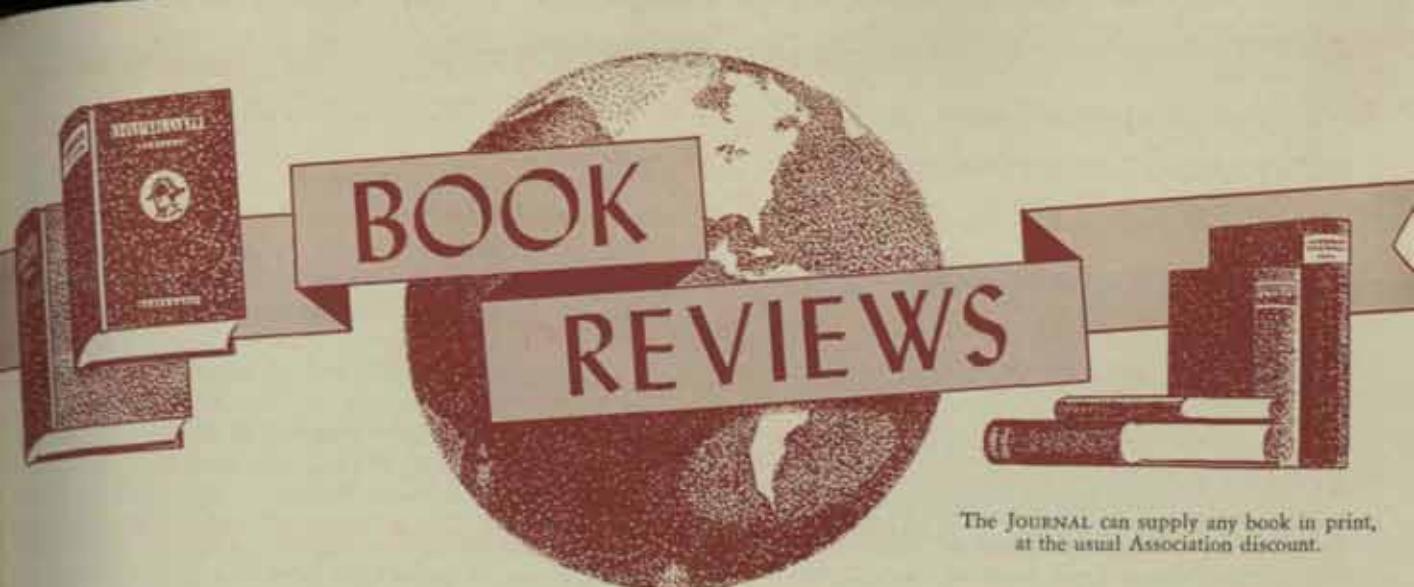
The Camp Stewart War Bond Drive continued to garner subscriptions among both soldiers and civilians. Two entire battalions subscribed 100 per cent during December, and the sale of bonds to the military personnel reached a total of \$235,000.00 maturity value during November. Incomplete returns for December show that this figure will be greatly increased. The antiaircraft battalion under Lieutenant Colonel John H. Brubaker went 100 per cent, taking approximately \$30,000.00 maturity value in bonds. The battalion under command of Major Preston Clayton, and Band Number One of the AAATC also went 100 per cent. Among civilian offices, the Post Engineer and the Post Quartermaster were the latest to join the 100 per cent list.

For the past two months' period Camp Stewart filled its Antiaircraft Officer Candidate and other Officer Candidate quotas, sending dozens of capable potential officers to Camp Davis and elsewhere.

Camp Stewart's Masons banded together and organized a local chapter of National Sojourners, Inc.

The Yule season, of course, highlighted the recreational side of Camp Stewart's activities, with Service Club dances, USO dances, open houses, carolings, and midnight Christmas Eve church services. A gigantic Christmas tree with its myriad-colored lights illuminated the main entrance to the Post. A big electric sign reading *Merry Xmas. Happy New Year* was placed beneath the tree. A beautiful illuminated scene depicting the journey of the wise men was located to the left of the gate. Camels with their riders were silhouetted against a desert background of dunes and palms. Chaplain Zund was responsible for the design and erection of this display.

It was an especially joyous Christmas for three members of one family, Private Otis Ashley and his two sons, Calvin and Herman, in that they could be together on this great day. Although joining the army at different times they are all now members of the same battery.



BOOK REVIEWS

The JOURNAL can supply any book in print,
at the usual Association discount.

Military Texts

Spanish Grammar

CARTILLA MILITAR. By Luis J. Navascues and Anson F. Sherman. New York: F. S. Crofts and Company, 1942. 200 Pages; Vocabulary; \$1.50.

Navascues and Sherman have produced an excellent elementary reader for those students who have completed basic Spanish grammar. The text has been prepared especially for military personnel with exercises illustrating military action. Of especial value for Spanish classes conducted within military units. The book contains a Spanish-English and English-Spanish vocabulary.

Portuguese Grammar

AN INTRODUCTORY PORTUGUESE GRAMMAR. By E. B. Williams, New York: F. S. Crofts and Company, 1942. \$1.90.

Written for the beginner who wishes to learn the language of Portugal and Brazil. This book is of especial interest to those with some knowledge also of Spanish as many points of similarity between the two languages are stressed. A special effort has been made to simplify the rules of pronunciation and to make clear the use of written accent marks. A Portuguese-English and English-Portuguese vocabulary is included.

For Map-Makers

MILITARY AND NAVAL MAPS AND GRIDS. By William W. Flexner and Gordon L. Walker. New York: The Dryden Press, Inc., 1942. 93 Pages; Index; Bibliography; Illustrated; \$1.00.

The preface of this paper-backed booklet states "The purpose of this book is to introduce to students without extensive mathematical background the general principles of the construction and use of maps." The student, however, should have at least a knowledge of geometry, plane and spherical, and trigonometry to get the most out of the text.

With the background as outlined above, a painstaking student will learn much about maps and the different types of projections, as well as a bit about navigation. The exercises at the end of each section are a good check on how well the student is understanding the lessons.

Now You See It . . .

MODERN CAMOUFLAGE. By Major Robert P. Breckinridge. New York: Farrar and Rinehart, Inc., 1942. 268 Pages; Appendix; Bibliography; Index; Illustrated; \$3.50.

Approved by the Office of Civilian Defense, this book is more adapted to civilian and industrial problems than military needs, but the basic principles outlined are still valuable. Well illustrated with before-and-after pictures, charts, and tables, the book is easily understood, ignores the hokum that characterizes many publications on camouflage, and presents a logical and restrained approach to a very timely subject.

It is unfortunate that with the relatively small field of probable purchasers, the price of the book must of necessity be rather high. However, if it solves one camouflage problem for the purchaser, it has paid its way.

Sugar-Coated Math

POPULAR MATHEMATICS. By Denning Miller. New York: Coward & McCann, Inc., 1942. 616 Pages; Illustrated; \$3.75.

This is not a cut and dried textbook of mathematics but rather a popularized presentation of the history, development, and application of eight divisions of the subject: arithmetic, geometry, algebra, analytic geometry, trigonometry, conic sections, solid geometry and spherical trigonometry, and calculus. The why and wherefore of mathematics is presented interestingly and clearly.

If you need, or would like, to be eased back into the mathematical consciousness of former school days, this is just the book for you. Whether or not you liked math before, your interest will be held from the first to the last page of this book. Profusely illustrated with diagrams, examples, tables, etc.

Rapid Transit

SHORT COURSE IN SURVEYING. By Davis and Kelly. New York: McGraw-Hill Book Company, 1942. 330 Pages; Illustrated; Index; Tables; \$2.50.

All students of surveying are familiar with the name of Davis. His books are standard in many schools and colleges. This is a compact volume of practically pocket size, making an easily transported book on this subject for the technical library of a modern traveling Coast Artillery officer.

The book is well illustrated with diagrams and cuts of instruments familiar to the surveyor. Six place logarithms of numbers and of trigonometric functions together with five place tables of natural functions make this volume a handy and convenient one to use in the field.



The Air Arm

Good Beginning

WINGED MARS: Volume I: The German Air Weapon, 1870-1914. By John R. Cuneo. Harrisburg: The Military Service Publishing Company, 1942. 177 Pages; Appendices; Notes; Bibliography; Index; Illustrated; \$2.50.

This is a most unusual book, different in many ways from the usual run of books on aviation. With 177 pages of text, and 161 pages of appendices, notes, bibliography and index, it would seem unbalanced, but the material that follows the text is both important and interesting.

In the preface the author says, "Very few studies of the air weapon have considered their subject from a functional point of view. Instead of tracing its development as a part of the military machine as a whole, they have concentrated on its individualistic or technical aspects. The semi-popular books treat the air weapon as a complete and separate instrument of war. Besides presenting an obviously incomplete picture, they unfortunately are written by authors who are advocates rather than historians. Consequently they sooner or later lose themselves in the author's personal theories and prejudices. The personalized stories of individual experiences and feats, while furnishing exciting reading, provide little or no clue to the over-all importance of the air weapon in a battle or to the over-all strategy or tactics of a battle in which the air weapon played only a part."

Mr. Cuneo has made none of these mistakes. That this entire volume is taken up with the development of air power in Germany up to the first World War indicates its completeness, and prophesies a complete history and analysis of world air power when the next books of the series come off the presses. The beginnings of German antiaircraft are touched upon in this volume—and German AA began long before the World War. A few chapters on the air developments of France and England are included also.

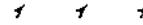
The reader who wants his history of the military air arm undiluted with axes to be ground will find this the first book of its kind, and a valuable reference work for those interested in further research.

Without Argument

THE COMMAND OF THE AIR. By Giulio Douhet. Translated by Dino Ferrari. New York: Coward-McCann, Inc., 1942. 394 Pages; \$4.00.

Dino Ferrari has translated Douhet's original four books, and the publishers have bound them in one volume, offering for the first time the complete English translation of the Italian air general's provocative writings. Quoted, misquoted, misunderstood, and deliberately twisted by legions of military writers and military "experts," Douhet's work has been the spark which has set off many a verbal explosion. The present volume should be most valuable in permitting the military students to read what Douhet really did say, and to draw their own conclusions.

We will not attempt to criticize the book. Millions of words and tons of paper have been wasted on this thankless task by others more qualified. With no thought of sacrifice, the book is like The Bible in that it can be used to support almost any argument, and like the same Book its partisans resent to the death any adverse criticism. For those who would know what the prophet said, and how well his prophesies have turned out, *The Command of the Air* is available in a literate translation, at a popular price, and in a binding that will grace any soldier's library.



Trail Blazer

GLENN CURTISS: PIONEER OF NAVAL AVIATION. By Alden Hatch. New York: Julian Messner, Inc., 1942. 273 Pages; Chronology; Appendices; Index; Illustrated; \$2.50.

Glenn Curtiss was one of those Americans with a genius for machinery and tinkering who helped make America great. He had an undoubted capacity for understanding mechanical affairs, and for developing and inventing contrivances to overcome the problem of the moment. Add to this faculty the ability to make friends and to inspire confidence, and an unquenchable desire to build a machine that would fly, and Curtiss' strides in the aircraft industry seem inevitable.

After building the first plane to land on water, and making that first landing, it followed that Curtiss should specialize in later years in naval aircraft. Through a maze of legal battles with the Wrights, and financial troubles that would have stopped a man less enthusiastic, Curtiss went on to become one of the great names in the industry.

Mr. Hatch, as a boy, watched the first Curtiss experiments and knew Curtiss and the group of loyal helpers who made the first dreams of flight come true. With a combination of first-hand knowledge and research, he has been able to write a very readable biography.



Flight Team

BOMBS AWAY. By John Steinbeck. New York: The Viking Press, 1942. 185 Pages; Illustrated; \$2.50.

This is the long-awaited story of a bomber crew, written by John Steinbeck for the Army Air Forces. All the royalties and publisher's profits will go to the Air Forces Aid Society Trust Fund.

John Swope took the sixty photographs that illustrate the book, and the pictures plus the format make a very pleasing volume. Steinbeck, noted for his so-called "stark realism" in writing, has done almost a straight reporting job, with no literary tricks and no striving for effect. He describes the selection and training of each member of a bombing team, and the training of the team as a whole. The book stops as the bomber leaves its training field for a theater of war.

* * *

Bailing Wire Air Force

FLEW FOR CHINA. By Royal Leonard. New York: Doubleday, Doran and Company, Inc., 1942. 295 Pages; \$2.50.

Royal Leonard went to China to fly as personal pilot for Chang Hseuh-Liang, the Young Marshal. After Chang's sun set, Leonard stayed on to fly as Chiang Kai-Shek's pilot, and to double as a pilot for Chinese National Aviation Corporation. On December 6, 1941, he was on a liner returning to the United States after six years in China.

This book is important because it describes, unemotionally but interestingly, the China that has been fighting the Japs for years. The politics, the economics, the geography, the people, and the soldiers of our ally came under Leonard's observation while he flew from one end of the country to the other time after time, and he observed well. The book makes good reading because Leonard had adventure after adventure, which he manages to describe in the proper balance of modesty and truthfulness. There is none of the simpering coyness that indicates that more is being held back through a desire not to appear boastful, and there is none of the attitude of "I am the best, and might as well admit it."

* * *

Jap Hunters

THE FLYING TIGERS. By Russell Whelan. New York: Viking Press, 1942. 213 Pages; Rosters; Illustrated; \$2.50.

Russell Whelan is Radio Director of United China Relief, and has been in a position to know the inner workings and to obtain the statistics of the American Volunteer Group. Writing not as one of the pilots, with the inevitable personal reactions, Whelan tells his story from the standpoint of an interested but impersonal observer who was in possession of all the facts. Since this is not the story of any one individual flier, but of the group as a whole and of individuals as they fitted into that group, this book should become one of the best reference sources on the Flying Tigers for future historians.

* * *

Our Enemies

Mr. Grew Reports

REPORT FROM TOKYO. By Joseph C. Grew. New York: Simon and Schuster, 1942. 88 Pages. Paper-bound, \$1.00; Cloth-bound, \$1.50.

The one man who should be able to write about Japan with authority has done so—Joseph Clark Grew, our ambassador to Japan from 1932 until the attack on Pearl Harbor. With clear, hard-hitting, and well-chosen facts and language, Mr. Grew tells us what we are up against, and why. Japan is no weak antagonist to be under-rated; she is strong and well-trained, and determined. The sooner we learn this, the better off we will be. With no conscious striving for literary effect, Mr. Grew has written a book in effective English that every American can understand, and that paints a picture every American should understand.

* * *

Our Fanatic Opponents

BEHIND THE FACE OF JAPAN. By Upton Close. New York: D. Appleton-Century Company, 1942. 417 Pages; Index; \$4.00.

There have been many books on Japan since December 7, 1941, but this book was written by Upton Close. Mr. Close, a life-long student of Japan and China, is a legitimate, not a self-appointed, expert on these countries, and is a skillful and interesting writer in the bargain. Published first in 1934, the book has been brought up to date by the addition of several chapters. Very wisely, the earlier text has been left practically untouched—it gives Mr. Close (his real name is Josef W. Hall) the aura of a prophet. The author knew what was in prospect for the world.

The book is dedicated to Colonel Lloyd P. Horsfall, CAC. Colonel Horsfall, as PMS&T at a large university, was able to secure the author's services once each year for a lecture to the ROTC unit. The reviewer, in 1927, heard Mr. Close outline Japan's psychology and aims in a lecture that has been born out by the events of the past ten years.

With this background of knowledge of his subject, and a down-to-earth, conversational style of writing born of this intimacy with Japan and the Orient, Mr. Close has written a readable and authoritative book that should prove valuable to every person, soldier or civilian, who feels the need to understand our enemy in the Pacific.

* * *

Wooden Soldiers

GERMAN PSYCHOLOGICAL WARFARE. Edited by Ladislas Farago for the Committee for National Morale. New York: G. P. Putnam's Sons, 1942. 296 Pages including Bibliography; \$3.00.

Much has been written about the so-called psychological warfare as perpetrated by the Nazis, but this volume seems to be the most authoritative that has been published in this country. This is a scientific survey, not a popular pot-boiler.

The survey covers both the internal and external aspects of German psychological methods—what they are doing both for the German civilian and soldier, and against foreign nations. The fact that under the Nazi regime the psychologists who have weathered the purges are charlatans like their masters is very fortunate for us who detest what Nazism stands for. The type of soldier, the type of officer, and the type of army the psychologists have manufactured for Germany explains much that has happened in the war thus far, and explains why we can puncture Germany's hard shell and expose the rotten core that is a

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stench in the nostrils of the world. An army can win with kill-crazy, arrogant, rigidly-molded puppets for soldiers, but when more is needed than fine weapons and polished tactics, our unworthy opponents will be found lacking. We should still place our bets on the American soldier, the unpredictable fellow who has no ambitions to conquer the world, but will make the world untenable for those who have such ambitions.

We can learn much from the German method of psychological warfare. We are learning much. We must recognize the importance of psychological selection and education for our soldiers and our people—but we can best learn what to avoid by reading this superbly constructed book.

Junkers Junked

THE SELF-BETRAYED. By Curt Reiss. New York: C. P. Putnam's Sons, 1942. 380 Pages; Chronology of Events; Bibliography; \$3.00.

Curt Reiss could make interesting reading out of a clothing requisition, and with this present subject, the German Junkers and Generals, he outdoes himself. To many Americans, especially those who know little about the art of war, credit all German generals with more knowledge and genius than they actually possess.

Reiss, on the other hand, writes of the German generals as the last remnants of a dying feudal class, whose strong hold is the land east of the Elbe, where castles, bastards, serfdom and other feudal anachronisms still hold forth. As members of their own class, the generals (*not* the Goering, Himmlers, and the other Nazi upstarts) are in a sense, admirable. They have their own peculiar codes of honor, which they actually live by. They detest the Nazi bally-murders, and even the political assassinations that accompany totalitarianism. They would rather fight in the Napoleonic tradition, where army met army in a short campaign, than in the Hitler style, where civil population meets civil population. Also, they are narrow, arrogant, and in many cases, just plain unintelligent. Their arrogant and their attitude toward every person on earth other than their own class is well known.

The General Staff, too, is an efficient, cold, fact-finding body that is directed by the generals, and grinds out workable plans just as a well-tuned automobile can be driven by an ignorant chauffeur.

It was the generals, and the General Staff, that gave Hitler his start, in an attempt to keep the German army for their own. According to Reiss, the generals and the staff never looked upon the Armistice as anything but an Armistice, and formulated the "stab-in-the-back" theory to explain their own failures as well as the political failure that lost the war for Germany. Hitler got his start as an army-subsidized political worker, and in 1933, he got the support of the generals by promising them the army that would wipe out the stain of defeat.

That Hitler, as soon as he had what he wanted inside Germany, tossed the generals overboard and went after the fulfillment of his own plans, giving his own friends the plums, marked the beginning of the end of the Junkers' class. When Germany loses this war, the prestige of the Junkers class will have fallen so low that it will not rise again, according to the author.

Unsavory Crew

THIS IS THE ENEMY. By Frederick Oechsner, with the U.P. Staff. Boston: Little, Brown and Company, 1942. 361 Pages; \$3.00.

Frederick Oechsner and four members of his United Press staff, while unwilling guests of the Nazis at Bad Neuheim after December 7, 1941, improved their time by planning this book. Each of the American newsmen was a specialist in a certain field, and after reaching the United States, each took an "angle" of the German picture, while Oechsner acted as Chief of Staff.

In the barest of summaries, they found that the Nazis are as unsavory a lot as ever grouped together, and Hitler is their leader in both senses of the word; that their technique of war has been effective, but was not planned for the long pull or the Russian misadventure; that the German people are none too happy about the war but that they have become conditioned to accept conditions without complaint, or at least audible complaint; and that Nazi interference with other countries and the Nazi fifth-column work is no pipe dream.

All of which indicates that these five top-notch reporters' findings agree with those we have learned to believe from the writings of others. However, this book is particularly well done from the standpoint of straight reporting, and covers more ground authoritatively than most of the others on the same subject.

Nazi Society

BLOOD AND BANQUETS: A BERLIN SOCIAL DIARY. By Bella Fromm. New York: Harper and Brothers, 1942. 298 Pages; Biographical Index; \$3.50.

At first thought, the social diary of a woman social light and newspaper reporter might not seem to be very important reading matter, but in this case the first thought is wrong. Bella Fromm was a hostess in the diplomatic and social set of Berlin between the World Wars, and was in a position to observe the decline of Germany and the rise of Hitler and his cohorts from a new vantage point. There have been many books on this subject written by American newspapermen and German intellectuals, but Mrs. Fromm's book contains none of the conjectural economic and political analyses that clutter the other books. The author sticks closely to events she actually saw and participated in, with a very light flavoring of her personal reactions. This is a personal narrative, that covers thoroughly the social phase and does not attempt to give a view of Germany as a whole.

This War**Post Mortem**

WAR IN THE WEST. By Daniel Vilfroy. Harrisburg: The Military Service Publishing Company, 1942. 163 Pages; Maps; \$2.50.

Daniel Vilfroy fought as an officer of the anaemic French armored force, and writes of the fall of France

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from the viewpoint of a soldier. He does not single out the politicians or the generals or the people of France for censure, as other writers have done, but he indicts almost every Frenchman except the few soldiers and junior officers who did their best, under incompetent direction, to stave off the disintegration of an already crumbling structure.

The author traces the military defeat of France day by day and step by step, and then retraces his steps to explain her diplomatic and political defeat. The poor organization of the army, the wrong thinking, and the ill-chosen weapons are treated in detail. After reading this analysis, we wonder how France lasted as long as she did, once the German steamroller got under way.

Unsinkable Mr. Brown

SUEZ TO SINGAPORE. By Cecil Brown. New York: Random House, 1942. 532 Pages; Index; \$3.50.

There were two wars in the Pacific—England vs. Japan and Cecil Brown vs. the censors. Cecil Brown has done a bang-up job of reporting the England vs. Japan phase, but the book suffers from his insistence upon devoting so much space and heat to the censorship phase. Cecil Brown is an ace reporter. He knows war, he knows how to write, he has the reporter's knack of being where things happen, and he has the personal courage to stay where things are happening at the risk of his life. His reports from the Pacific battlefield have assured him a place in the ranks of the world's greatest newsmen.

The tale Brown tells is heart-breaking in almost every aspect. Unpreparedness and ineptitude beat through the story like an ominous undertone, but the stories of courage and will-to-win in the face of odds give us the same sort of hope that later events have magnified.

When Brown reports the war, the book is breath-taking in its clarity and vividness. He brings out the moments of hopelessness, of fear, of encouragement, and of triumph in a masterful manner. This book might prove to be an invaluable source for future historians.

Prison Guide

BEHIND BOTH LINES. By Harold Denny. New York: Viking Press, 1942. 209 Pages; \$2.50.

There is little doubt that Harold Denny ranks among the top five American war correspondents, both as a reporter and as a writer. Captured by Rommel's panzers in Libya before the United States entered the war, he was shuttled between German and Italian prisons and prisoner-of-war camps until finally exchanged and brought home on the *Drottningholm*.

His story is devoid of heroics—he merely tells the things that happened to him, and gives his impressions of Germany and Italy. He finds the Germans as distasteful as ever, with some exceptions. The Italians, on the other hand, are generous in their limited way and not very much interested in the war, again with some exceptions.

By far the best part of the book is Denny's story about life in an Italian camp for British officer prisoners. The Italians treated the British better than might be expected.

Although their inefficiency and the food scarcities did not help matters much. Being a prisoner of war requires knowledge and technique if the prisoner is to have life as pleasant as possible under the circumstances, and still keep his conscience clear of even unwitting aid to the enemy. Denny is able to give quite a few pointers about solving this problem.

Uneasy Lies the Head . . .

THE UNCONQUERED. By Robert Carse. New York: Robert M. McBride and Company, 1942. 225 Pages; \$2.50.

Nine stories of guerrilla or "underground" action against the Nazis, from nine conquered countries, have been given semifictional treatment to symbolize the resistance against the German conquerors. From The General, a former Nazi sympathizer in France, to the Cretan grandmother, the characters have one thing in common—a resolve that their degradation will not go unchallenged. The reviewer does not envy the Gestapo. For every patriot killed, there are ten to take his place.

Scientific Analysis

AMERICA AT WAR. Edited by Samuel Van Valkenburg. New York: Prentice-Hall, Inc., 1942. 284 Pages; Index; Illustrated; \$2.50.

Military men, long students of terrain, have of necessity expanded their geographical knowledge to include meteorology, climate, raw materials, industrial capacity, power sources, and food supplies. This book, written by six expert geographers, is an important approach to the geographical problems of a global war.

The authors have marshaled their facts and drawn their conclusions in a cold, scientific manner, and have, in the main, avoided conjecture, leaving that to the reader. Their estimates of the leading warring nations, of the limitations and possibilities of the United States in the present war, and of the interrelated effects of history and geographical accident, are interesting as well as helpful in understanding why and how this war is being fought.

Picture Book

WAR IN OUR TIME: A CONNECTED ANALYSIS IN PICTURES AND TEXT OF WORLD CHAOS 1931-1942. By Harry B. Henderson and Herman C. Morris. New York: Doubleday, Doran and Company, 1942. 416 Pages; Illustrated; \$3.75.

Many great photographs have come out of this war—this book has collected many of the best, as well as a large quantity of pictures that the reviewer, at least, has not seen published before. Beginning with the Jap entry into Manchuria, and ending with the now-famous photo of the latter Japanese *Mogami*, the book presents a pictorial record of the war thus far that will become a treasured possession of our sons and grandsons, just as certain books of the Civil War period are prized in many a home today. The pages of this volume are eight inches by twelve inches; there is a lot of book for the price.

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Another Battlefield

ACTION AGAINST THE ENEMY'S MIND. By Joseph Bornstein and Paul Milton. New York: The Bobbs-Merrill Company, 1942. 294 Pages; \$2.50.

This book is not a collaboration, but two books which conform to a general pattern. The first book analyzes the Axis methods of weakening their enemies before a shot is fired; the second book discusses the chinks in our own armor that play into the hands of the Axis propagandists. Both sections appeal for unity among ourselves, since the Axis game is won when racial, religious, or economic groups begin to place their own advantages and prejudices above the national welfare.

Advice from the Bleachers

BLUEPRINT FOR VICTORY. By Homer Brett. New York: D. Appleton-Century Company, 1942. 204 Pages. Index; Maps; \$1.75.

Mr. Brett calls himself a Monday-morning quarterback in the opening pages of the book, and then proceeds on the most violent round of second-guessing and prognostication that the reviewer has heard since Pullman travel was curtailed. In short, he finds our entire war effort being bumbled by unrealistic Washington, inefficient military leaders, and everybody else within view. He drags out of the closet all the old skeletons and rattles them with the vigor of castanets. He finds our admirals nostalgic for the past and our generals ignorant of the present, etc.

The main premise of the book, the dominating theme that crops up between his verbal pyrotechnics, is that Japan should be tackled first, by air from the Aleutians, and that after this is done we can concentrate on Hitler.

Names for Posterity

NONE MORE COURAGEOUS. By Stewart H. Holbrook. New York: The MacMillan Company, 1942. 245 Pages; Illustrated; \$2.50.

Soldiers and sailors of today fight better because they have heard the stories of heroism of former wars. It is hard to fail when the gallery of heroes from Ethan Allen to York and Woodfill seems to glare down at you. "Don't give up the ship!" and "Retreat hell! We just got here," make it difficult to do less. Stewart Holbrook has started the gallery of heroes for the present war. Wehrmuth, the *Marblehead*, Wheless, Bulkeley, O'Hare, Ninninger—the list is already too long to publish. Our fighting men have certainly not let us down. There will be a bountiful crop of new heroes for our children to hear about.

Stewart Holbrook writes the stories in very human fashion, without spreading halos broadcast. His story of Wake is one of the best, with not a word wasted, and without pressing for literary or emotional effect. The story alone is enough.

The Peace

No More Versailles

AMERICA AND THE AXIS WAR. By Denys Smith. New York: The MacMillan Company, 1942. 416 Pages; Index; \$3.00.

Reviewing our many mistakes and few victories in the international scene between the two World Wars, Mr. Smith has written a well-documented summary and analysis of America's efforts, internally and internationally, to keep the world out of war, and failing that, to keep America out of war.

When this war ends, America will have much to say at the peace table. The mistakes of Versailles must not be made again; to avoid the mistakes of Versailles we must know what happened there, and throughout the world afterwards, as a result of that patchwork of a treaty.

Mr. Smith recommends for the future a world organization of the type of the Pan-American Union, rather than of the form of the old League of Nations, because Americans, as well as others, are not yet ready to give up even the appearance of sovereignty. Isolationism, he believes, is now recognized by the American people as an unworkable political aim.

United Nations

MAKE THIS THE LAST WAR. By Michael Straight. New York: Harcourt, Brace and Company, 1943. 410 Pages; Index; \$3.00.

Michael Straight is young enough to be awaiting induction as an aviation cadet in the Army Air Forces, and old enough to have been on the staff of the Adviser on International Economics of the State Department, an assistant to the National Power Policy Committee, an economist of the European Division of the State Department, and to be an editor of the *New Republic*. His background, in experience, travel, and education, is wide.

He has written a fiery blast at the conduct of the war, past and present, at the Army, Industry, and Government, and at some of the United Nations, bolstered with selected statistics and facts, as well as quotations from a wide variety of sources. His main thought seems to be that the United Nations is the germ of an idea, no matter how poorly it is being handled at present, for the future peace of the world.

His ideas are, of course, radical—how radical will be decided by the reader and the reader's own ideas and background. To attempt to assess the value of those ideas, in anything less than another book, would be futile.

Peace and Preparedness

FOR PERMANENT VICTORY. By Melvin M. Johnson, Jr., and Charles T. Haven. New York: William Morrow and Company, 1942. 246 Pages; Illustrated; \$2.50.

Many an army officer and many a believer in preparedness has thought the things that Johnson and Haven, authors of *Automatic Arms*, have put down on paper in this provocative book. Going into every major war relatively

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Winged Mars is the covering title of a series of books on the history of the Air Weapon. The first volume, The German Air Weapon 1870-1914, tells of the European beginning of the air weapon. Without bias, the author tells the fascinating facts of the early balloon corps, the dirigibles and—of particular interest to Coast Artillerymen—the first antiaircraft weapons and defense. This first volume which traces the tactical and strategic development is intelligently written, well illustrated and makes one wait impatiently for the succeeding volumes to get the whole truth about the much debated use of the air weapon down the years.

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Number 36 on the Journal Booklist

unprepared, the United States has never seemed to learn the lessons that should have been taught by the blood and tears of the previous wars.

In this review, we will not attempt to summarize the authors' arguments—every soldier knows them, even if he has not been able to convince the civil populace that the arguments have merit. Peace is not won by ignoring war and lives are not saved by failing to train men or to manufacture materiel. As self-evident as the facts appear, the nation as a whole never seems to recognize them.

As the authors say, "The American people must habitually distinguish and be taught to differentiate between a normal, adequate readiness for the emergency of war and an overdeveloped, truculent, restive, sword-rattling, military machine. . . . We must remain military-minded, no militaristic. We can be pacific without becoming pacifistic."

Let us hope that vast numbers of Americans read this book, and remember its lessons even after the end of the present war.

A Calm Pacific

BASIS FOR PEACE IN THE FAR EAST. By Nathaniel Peffer. New York: Harper and Brothers, 1942. 263 Pages; Index; \$2.50.

Mr. Peffer's recipe for peace in the East is based not on merely winning the war, but on crushing Japan so devastatingly that she will be in no shape or mood for war for several generations. Occupation of Japan would not have the proper effect—it would merely result in union and a desire for revenge. The author insists on a defeat so thorough that occupation would not be necessary, that the military caste would lose its grip on the people, and that Japan's efforts would necessarily be absorbed in rebuilding the nation, rather than armaments.

Then, markets must be opened to the defeated nation, so that the need for conquest is removed.

China, after the war, will demand, and should get, recognition as a world power—the West must give up much of its gains in territory and power in that country. China defended herself for years, and fought for independence from Japan. She will not be content to have foreign concessions within her borders. Mr. Peffer finds this all for the good the bone of contention among the other world powers will be removed. As for the threat of a powerful China to the rest of the world, the author does not see it. He finds China not well-developed enough industrially or economically for conquest, not now or not for the near future.

The author considers the rest of the Far East in turn his logic and information demand respect. However, let's first catch our rabbit.

Our Navy

The Lex

QUEEN OF THE FLAT-TOPS. By Stanley Johnston. New York: E. P. Dutton and Company, Inc., 1942. 280 Pages; Illustrated; \$3.00.

Stanley Johnston's account of the last cruise of the Lexington includes all the detail that newspaper and communication limitations, as well as immediate censorship re-

quirements, could not permit in earlier accounts. Johnston was aboard the *Lexington* in the battle of the Coral Sea, and was on the proud carrier when she was lost. His story is stirring, and at the same time instructive. Very skillfully he brings out the important events through the medium of little intimate details about men and matériel, to paint the large, well-balanced picture.

Periscope View

SERPENT OF THE SEAS. By Commander Harley F. Cope, U.S.N. New York: Funk and Wagnalls Company, 1942. 246 Pages; Illustrated; Index; \$2.50.

Among the many books written about submarines during the past few years, this one is a novelty. It was written by a submarine commander! Commander Cope has been at both ends of the torpedo run—he has fired torpedoes, and was commander of the *Salinus* when she was hit by torpedoes in the North Atlantic.

The book is informative, and at the same time lightly written and well-sprinkled with informative anecdotes. Commander Cope knows the submarine skippers who are blasting Jap ships within sight of Nippon, and tells their stories well. He steers clear of technical data about the vessels, which after all would not fit into this type of book.

Unfortunately, the book is slightly repetitious in spots, and shows other signs of hurried editing, but this does not detract appreciably from its value as a portrayal of the work of an important but little publicized branch of the naval service.

Naval Heroes

MAKERS OF NAVAL TRADITION. By Carroll Storrs Alden and Ralph Earle. New York: Ginn and Company, 1942. 370 Pages; Index; Illustrated.

From John Paul Jones to James P. S. Devereux, this book is a parade of naval heroes, ships, and flags. Written for first-year midshipmen at the Naval Academy to indoctrinate these youngsters into the traditions of their service, the book is written in restrained, adult language, but pulls no punches in fulfilling its function of pointing a path for the future naval officers to follow.

History

Neighboring City

MONTREAL: SEAPORT AND CITY. By Stephen Leacock. New York: Doubleday, Doran and Company, Inc., 328 Pages; Index; Illustrated; \$3.50.

When the publishers chose Stephen Leacock to write this volume of their popular Seaport Series, they were guided by inspiration. Known all over the English-speaking world as a humorist, and making his living as a professor of Political Science at McGill University, in Montreal, Leacock's background could not help but produce a scholarly history and description of the city, interlarded with his own deft humor. Montreal, like San Francisco, is a city that is easy to

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like. Lively, different, prosperous, sincere, picturesque, friendly—it is always a pleasant city to visit, and must be a good place to live. The attractions of the city do not suffer at the hands of Leacock, who pokes fun at the things that need it, and goes all-out in his praise of the things that deserve it.

The history of Montreal is one long chronicle of excitement—Indian fights, full-dress wars, civil wars, invasions, fires, and civic squabbles enlivened its past. Of necessity the author has included much of the history of Canada in his story, stressing the events our own school histories gloss over. This is fine writing on an interesting subject.

"He Wins Battles"

GRANT OF APPOMATTOX. By William E. Brooks. Indianapolis: The Bobbs-Merrill Company, 1942. 311 Pages; Notes; Index; \$3.00.

There are few great figures in American military history about whom historians disagree as much as about General U. S. Grant. The controversies are not surprising, even during the course of the Civil War Grant's fellow generals and superiors could not agree on their estimate of the man.

Mr. Brooks, while writing *Lee of Virginia*, found evidence that Grant was not as the muckrakers and "realistic" writers had painted him, but was on the contrary a fine leader, a wise general, and a man of sterling character. The man interested the writer, and this book is the result. Brooks finds that there was a period in Grant's life, long before the Civil War, when he met his master in alcohol, but that there were extenuating circumstances and that the trouble his over-indulgence brought had much to do with shaping his character for the better.

Brooks can find little but praise for Grant during his Civil War service. Mistakes Grant made—but he learned from the errors and never made the same mistake twice. Far from being a careless butcher who won his victories only by overwhelming force and not counting the costs, Brooks finds that he was a canny general and a great leader hampered by inefficiency from below and ignorance from above—that when Grant had his way, and the proper support, he never missed.

The author hammers at the idea that when leadership was needed, Grant rose to the occasion. Mr. Brooks seems to have made his point.

Generals All

LEE'S LIEUTENANTS: A STUDY IN COMMAND. By Douglas Southall Freeman. New York: Charles Scribner's Sons, 1942. 773 Pages; Index; Illustrated; Appendices; \$5.00.

Dr. Freeman's four-volume work on R. E. Lee has worthy successor in this, the first of a projected three volumes. This book, which covers Manassas to Malvern Hill, reflects Dr. Freeman's painstaking accuracy and broad knowledge of his subject.

Opening with a series of photographs and thumb-nail sketches of his subjects, the author has made it easy to follow the careers of the men through the simple device

turing to the front of the book when the reader becomes confused.

Instead of compartmenting his narrative into chapters or sections on each leader, the author has very wisely kept to a running story, bringing his characters forward when they fit into the narrative. Thus, describing the influence of each general upon the course of the war is kept as the primary purpose of the book—we have a study in command rather than a series of biographies. At a time when we are choosing leaders to carry the United States through a critical military period, Dr. Freeman's intelligent study of the strengths and weaknesses of the leaders in our "classic" war is especially timely.

No military student needs to be assured of Dr. Freeman's qualifications, either in the literary or military fields. The hope of those who knew Lee's Lieutenants was in preparation have been more than fulfilled.

Military History

DECISIVE BATTLES OF THE U.S.A. By Major-General J. F. C. Fuller. New York: Harper and Brothers, 1942. 401 Pages; Index; Maps; \$4.00.

General Fuller, the champion of the tank and mass tank tactics long before the world heard of "Blitzkrieg," and known widely as a sound, if unorthodox, military writer, has turned out what the publishers call "A one-volume military history of the United States." Well foot-noted and otherwise authenticated, the actual battles, as described by General Fuller, bring nothing to the reader that has not appeared elsewhere except that the author's estimates and analyses are valuable for two reasons—he has always been a progressive (many say a radical) in military thought, and he beats the drums for neither side. His handling of the battles of the Revolution is particularly free from the bias that might be expected of an officer in the British forces.

From the Boston Tea Party to the Meuse-Argonne, the author has analyzed our politics that led to war, as well as the important battles of each war. He does not harp on mistakes, nor take a patronizing tone toward "bungling Colonials"; he gives our country and its leaders, political and military, credit where he believes credit is due, and censure when that is indicated. This is a book for soldiers to study, particularly because it is as free from bias as it is possible to be, and because the author, although accused of being a military faddist, writes rings around some of his more orthodox critics.

The Cold Land

GREENLAND. By Vilhjalmur Stefansson. New York: Doubleday, Doran and Company, Inc., 1942. 316 Pages; Bibliography; Index; Illustrated; \$3.50.

The present war has brought Greenland into the news, and even more into the minds of those who deal with military strategy. Americans know little about this land (large island, or small continent); it has never appeared important to them before. When we placed Greenland under our protection for the duration of the war, many of us were prone to mutter "So what," and let it rest.

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Stefansson, an American of Icelandic descent, is one of the world's Arctic experts. In this book, he has written a scholarly, but in no manner dull, history of Greenland that should do much to help us understand the land's background and economic picture. Stefansson begins his study in prehistoric times, and goes on from there. Legend, Greek history, sagas, and other sources provide leads for his interest-exciting analyses.

The chapter titled "Strategic Importance" is especially valuable.

Our Quiet Neighbors

THE UNGUARDED FRONTIER. By Edgar W. McInnis. New York: Doubleday, Doran and Company, Inc., 1942. 370 Pages; Bibliography; Index; \$3.00.

Edgar W. McInnis, a member of the Department of History, University of Toronto, has written a valuable history of American-Canadian relations. Canadians have always known more about the United States than Americans have known of Canada, so it is not surprising that a book of this type should come from the Canadian side of the border.

The author has written a factual, but almost thrilling history of our relations with our neighbor to the north. As time passes we must become more aware of Canada, and both countries must be more understanding of the aims and life of the other. This book would be a good starting point for any person who wants to assure our good relations with the nation on the other side of the unguarded frontier.

Hitler Found Out

THE RED ARMY. By Michel Berchin and Eliahu Ben Horin. New York: W. W. Norton and Company, Inc., 1942. 265 Pages; Illustrated; Index; \$3.00.

Any estimate of the Soviet army has to be taken on faith, since all we really know about this powerful military machine is that it works—and works better than we had dared hope. The authors of this estimate are Russian journalists, widely experienced, and well-educated. In reading this joint effort, we can feel reasonably sure that their historical data is correct; that their statistical data is as accurate as the hush-hush Soviet policy will permit; that their analyses of previous battles are constructed from the best sources; and that their description of the Russian trends of military thought is born of first-hand knowledge. With this background, the authors offer a rather thorough, if popular, study of the Red Army and find that arm good—as the history of the past two years has already proved. Their thoughts as to why it is good are, therefore, the meat of the book; the "why" is well explained.

Typhus and Typhoid

SILENT ENEMIES. By Justina Hill. New York: G. P. Putnam's Sons, 1942. 260 Pages; Index; \$2.50.

The line officer cannot dismiss the subject of disease

and disease control as something belonging exclusively to the Medical Department. Low disease rates, whether the disease be malaria or venereal illnesses, are as much a function of command as low accident rates or military courtesy. But the line officer is at a disadvantage. He is not expected to know very much about disease, and yet proper co-operation with the medical services requires a certain familiarity with the symptoms, vectors, results, and other manifestations of diseases.

Miss Hill has written a clear, nontechnical, interesting book on diseases and their control, with added material on burns and wounds, that should prove valuable for every officer who is responsible for the lives and fighting efficiency of American soldiers. Medical officers, although understandably wary of line officers who profess to know too much about medicine or surgery, should welcome the addition of this book to the line officer's library. The book usurps none of the medico's functions—it merely provides the understanding necessary to co-operation.

Although *Silent Enemies* was written for the intelligent general reader, it fits very nicely into a military library.

* * *

The Inside Looking Out

THE ARMY LIFE. By Private E. J. Kahn, Jr. New York: Simon and Schuster, 1942. 152 Pages; \$1.75.

It is probably true that only in the United States would we find a book written by a private, with the foreword to that book written by his division commander, a major general. It is undoubtedly true that only in the Army of the United States would we find the general matching and even surpassing the light and whimsical tone of the book's author.

Major General E. F. Harding, in his foreword, says, "Private Kahn's humor, like the quality of mercy, is not strained. Neither is it bitter. It is gentle, and he injects it easily, sometimes almost imperceptibly, into his story. Don't read him if you are looking for belly laughs. He appeals only to that part of the anatomy above the neck."

Which is a better review than your reviewer could have written. Private Kahn has written his impressions of the army, without using a single cliché or story that has been handed down from Caesar's time.

* * *

Humor for Soldiers

THE NEW YORKER WAR ALBUM. New York: Random House, 1943. 108 Pages; \$2.00.

The best of the *New Yorker's* humorous war cartoons have been selected for this album. Soglow, Williams, Arno, Robert Day, Hoff, and thirty-seven other top cartoonists have their best work reproduced. Civilian defense, the army, and the every-day citizen come in for their share of good-natured ribbing by master caricaturists.

When we can laugh at our troubles, they don't seem like troubles any more. For this reason alone, if the reviewer were a battery commander this album would have top priority on the list of books to buy for the battery library or dayroom. Any American soldier or civilian, who can read through this book without at least a dozen chuckles is a poor risk for morale insurance.

For Dayrooms

BEST CARTOONS OF THE YEAR. Edited by Lawrence Lariar. New York: Crown Publishers, 1942. 125 Pages; \$2.00.

It is a sourpuss indeed who will not get a chuckle per page out of this collection of the best cartoons from the national magazines. *Saturday Evening Post*, *Colliers*, *Liberty*, *This Week*, and other magazines, and a large selection of top-notch cartoonists, are represented in this collection. This is another must for the dayroom or camp library.

* * *

The Far Outpost

AUSTRALIAN FRONTIER. By Ernestine Hill. New York: Doubleday, Doran and Company, 1942. 315 Pages; Glossary; Index; Illustrated; \$3.50.

The things Miss Hill writes about the Australian "outback" must be true, because an exceedingly fertile imagination could not produce such places, people, or events. The author spent five years traveling in the little known parts of the great continent of our ally—a frontier that makes our own Wild West take the ranking of Central Park on a dreamy Sunday. Hostile blacks, burning deserts, steaming tropics, treacherous shores, uninhabited forests, strange animals and sea creatures, and the handful of whites who pit their strength against nature and the savage make a breath-taking adventure story that loses none of its effect because it is factual.

If the war comes closer to Australia, the Americans who look upon this country as a land as well-organized for transportation and subsistence as our own, are due for a rude shock. It will be no simple matter to move thousands of troops through vast areas of our co-belligerent's territory. The country is too rough, the climate too harsh.

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